



U.S. Army Environmental Center
Environmental Technology Division
Edgewood Area
Aberdeen Proving Ground, Maryland

EVALUATION OF A TRANSPORTABLE HOT-GAS DECONTAMINATION SYSTEM FOR THE DECONTAMINATION OF EXPLOSIVES - CONTAMINATED DEBRIS & PIPING

DISTRIBUTION STATEMENT A

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Distribution Unlimited

Operations & Maintenance Manual

AS-BUILT DRAWINGS

VOLUME II

19961017 124

WESTON
MANAGERS DESIGNERS/CONSULTANTS 96P-2943

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FURNACE EQUIPMENT

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRIPTION</u>
F928-01 (Sheet 1)	B	8/1/96	WIRING DIAGRAM: M
F298-01 (Sheet 2)	B	8/1/96	WIRING DIAGRAM: M
F298-01 (Sheet 3)	B	8/1/96	WIRING DIAGRAM: M
F298-01 (Sheet 4)	B	8/1/96	WIRING DIAGRAM: M
F298-02 (Sheet 1)	B	8/1/96	MODEL FBG5610: GEN
F298-02 (Sheet 2)	B	8/1/96	MODEL FBG5610: GEN
F298-03	B	8/1/96	COMBUSTION SCHEM
1300-01	-	12/27/95	INTERCONNECT DUCT
1300-02	-	1/1/96	EXHAUST PLENUM AS
1300-03	-	1/8/96	EXHAUST PLENUM DE

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FURNACE EQUIPMENT

EQUIPMENT

DRAWING DESCRIPTION

WIRING DIAGRAM: MODEL FBG5610 GAS FIRED FURNACE
WIRING DIAGRAM: MODEL FBG5610 GAS FIRED FURNACE
WIRING DIAGRAM: MODEL FBG5610 GAS FIRED FURNACE
WIRING DIAGRAM: MODEL FBG5610 GAS FIRED FURNACE

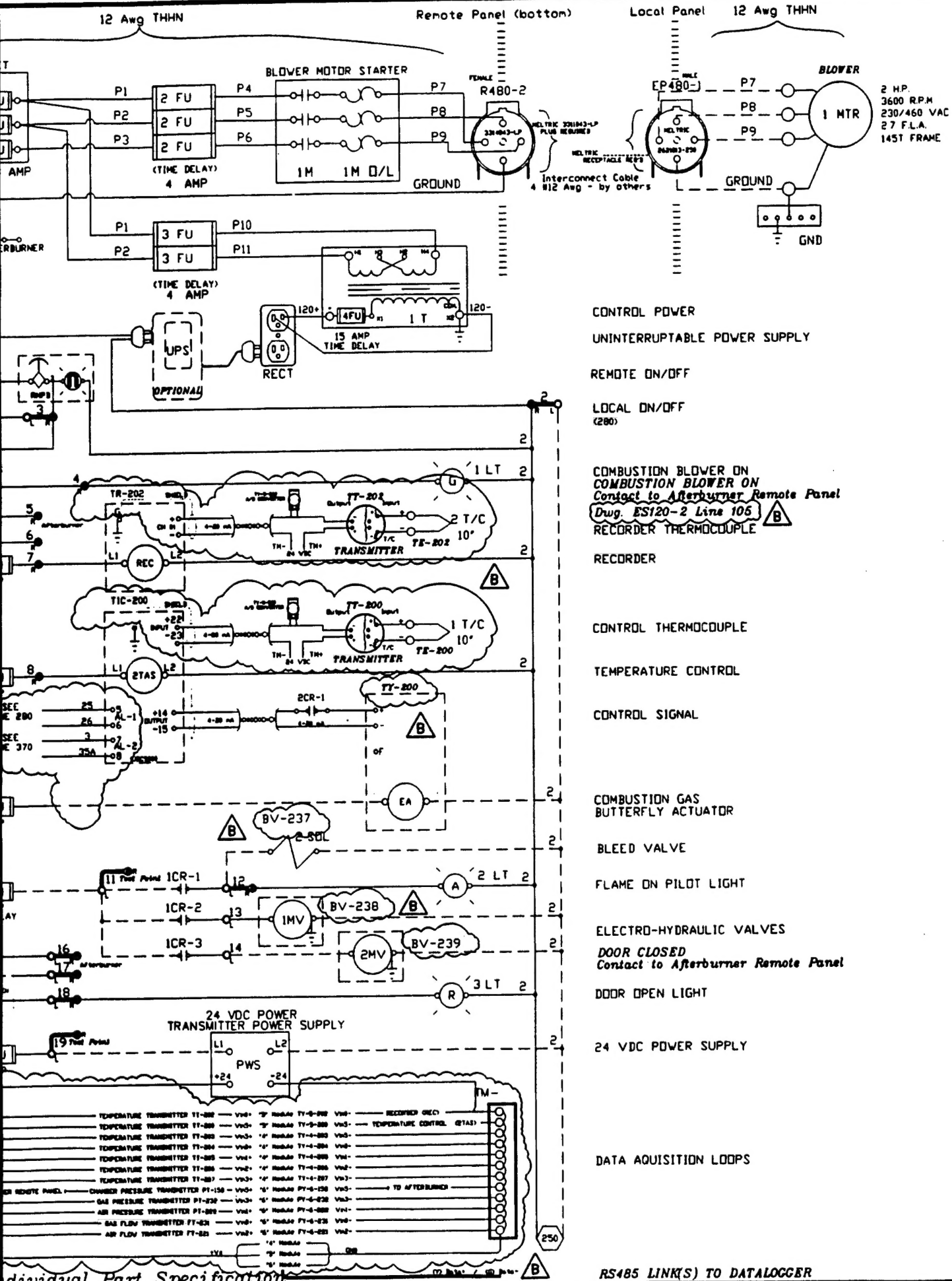
MODEL FBG5610: GENERAL DIMENSION & ASSEMBLY
MODEL FBG5610: GENERAL DIMENSION & ASSEMBLY

COMBUSTION SCHEMATIC

INTERCONNECT DUCT
EXHAUST PLENUM ASSEMBLY
EXHAUST PLENUM DETAILS

2

Refer to Master Parts List 350 Series Numbers for individual Part Specifications



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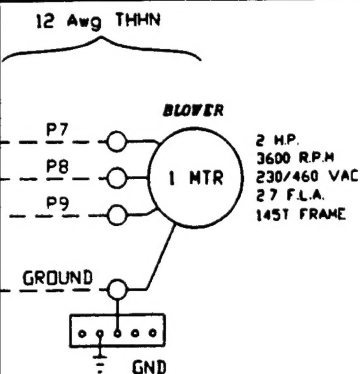
JOB NO

W

FILE NO

FILE

2



POWER SUPPLY

ER ON
ER ON
Remote Panel
105
COUPLE

COUPLE

ROL

DR

IGHT

C VALVES

Remote Panel

PPLY

DDPS

DATALOGGER

CERTIFIED FOR CONSTRUCTION

FOR JOB # WES-FBG5610-1 (1294LL)
DATE : 9/28/94 BY : S.N.L.
APPROVED BY : COLLEEN A. PARKER (CUSTOMER)
DATE : 8/1/96

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REV#	DATE	REVISION DESCRIPTION



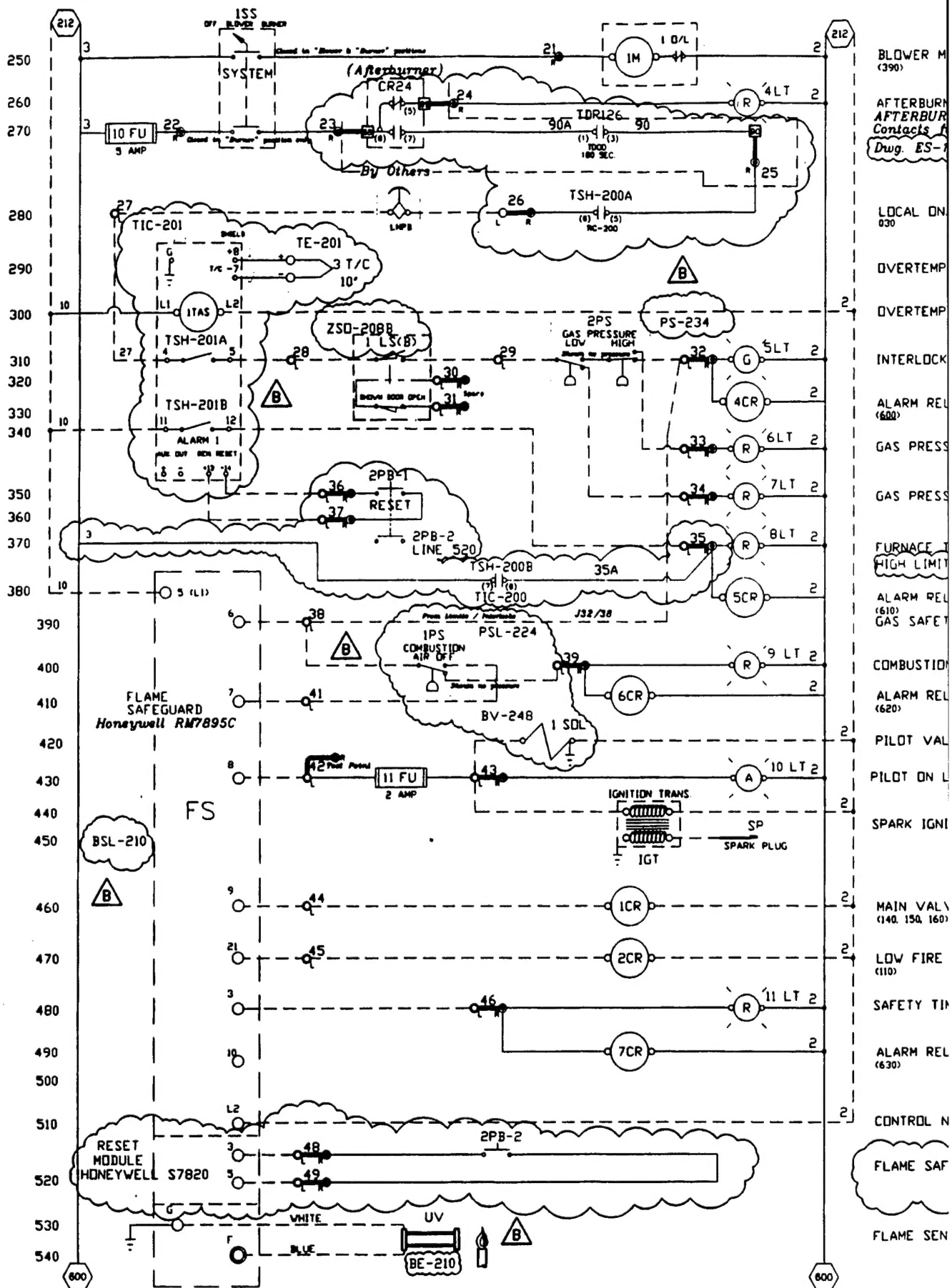
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20 KENT RD. P.O. BOX 2129 ASTON, PA. 19014

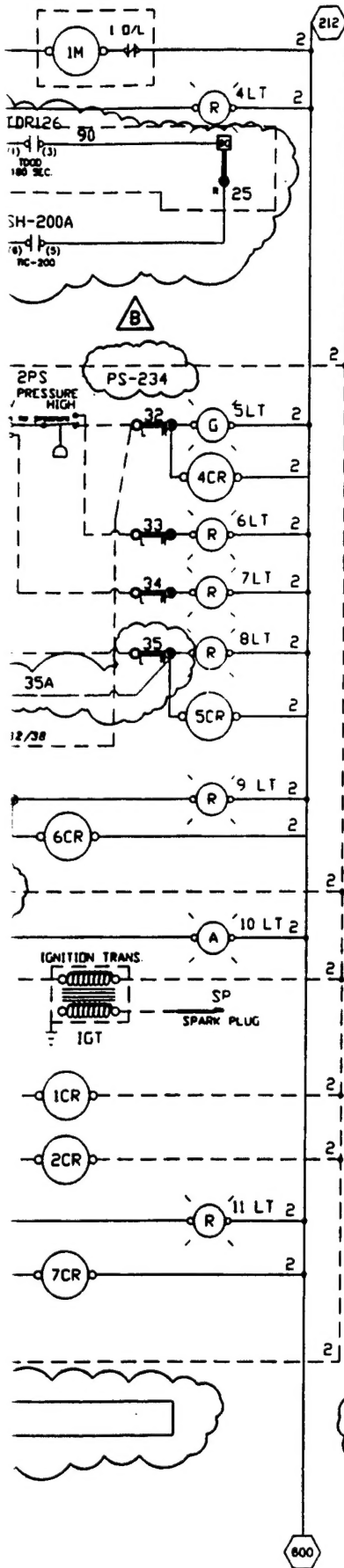
WIRING DIAGRAM
Model FBG5610 Gas Fired Furnace

DRAWN BY	S.N.L.	REV. CODE	DRAWING NO.
DATE	5/25/95	SCALE	.125
CHK	APP	B	F928-01
JOB NO.	WES-FBG5610	SER NO.	1294LL
FILE NAME	FAIRVIEW WESTON F928-01.DWG	MADE FROM	F878-01 (Hamilton Standard)

3



Refer to Master Parts List 350 Series Numbers for individual Part Specification



BLOWER MOTOR CONTACTOR
(390)

AFTERBURNER OFF-LINE LIGHT
AFTERBURNER PERMISSIVES SATISFIED
Contacts from Afterburner
Dwg. ES-120-2 Line 128 to 133

LOCAL ON/OFF
030

OVERTEMP THERMOCOUPLE

OVERTEMP CONTROL

INTERLOCKS OK

ALARM RELAY
(600)

GAS PRESSURE HIGH

GAS PRESSURE LOW

FURNACE TEMPERATURE HIGH
HIGH LIMIT OR CONTROL

ALARM RELAY
(610)

GAS SAFETY INTERLOCKS

COMBUSTION AIR LOW

ALARM RELAY
(620)

PILOT VALVE

PILOT ON LIGHT

SPARK IGNITION

MAIN VALVE
(140, 150, 160)

LOW FIRE RELAY
(110)

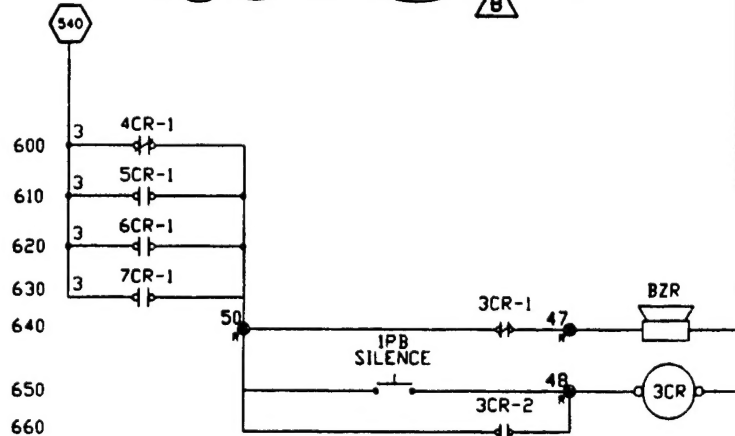
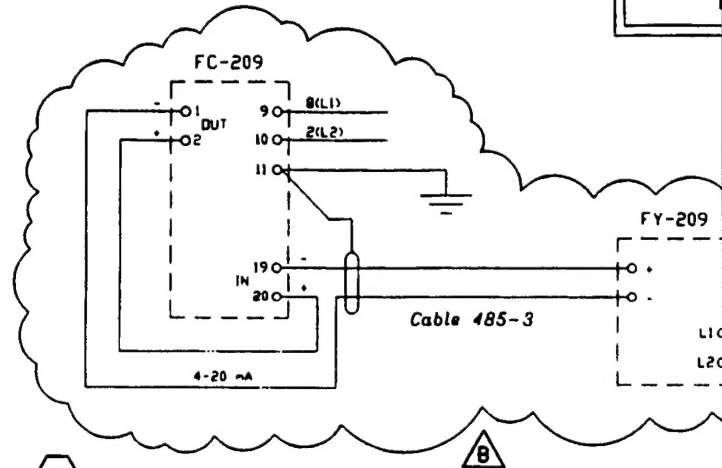
SAFETY TIMED OUT

ALARM RELAY
(630)

CONTROL NEUTRAL

FLAME SAFETY RESET

FLAME SENSOR



FOR JOB
DATE :
APPROV

DO
PERS
IT WA

FY-209
L10
L20

B 8/1/9
A 8.25.9
REV# DATE



Model

DRAWN BY
DATE 5/25/9
CHK
JOB NO. WES-FBC
FILE NAME
END WES

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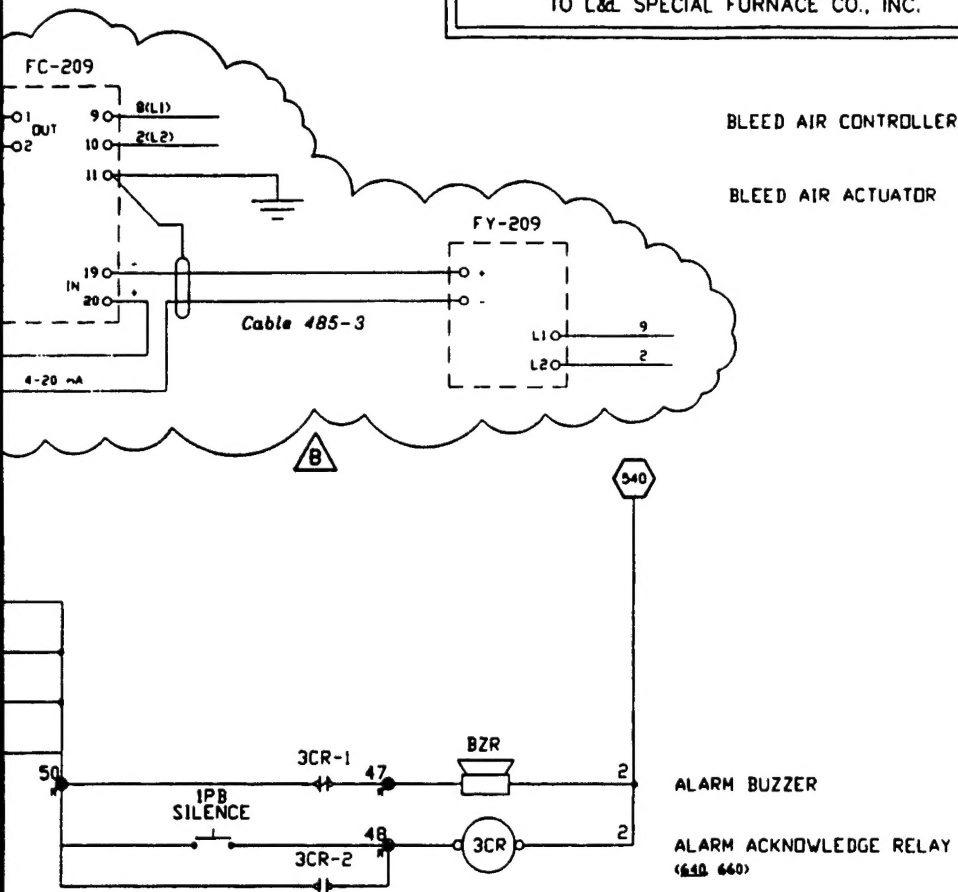
FOR JOB # WES-FBG5610-1 (1294LL)

DATE: 9/28/94 BY: S.N.L.

APPROVED BY: COLLEEN A. PARKER

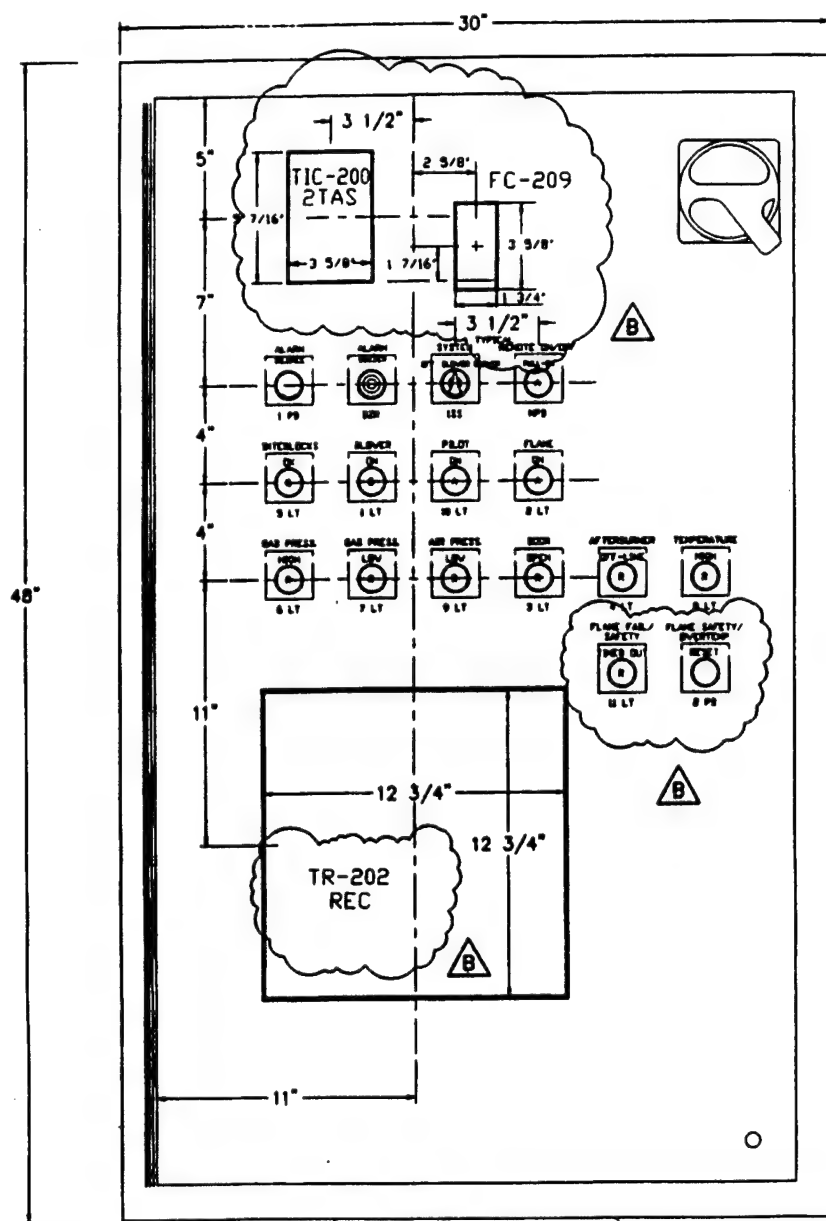
DATE: 8/1/96 (CUSTOMER)

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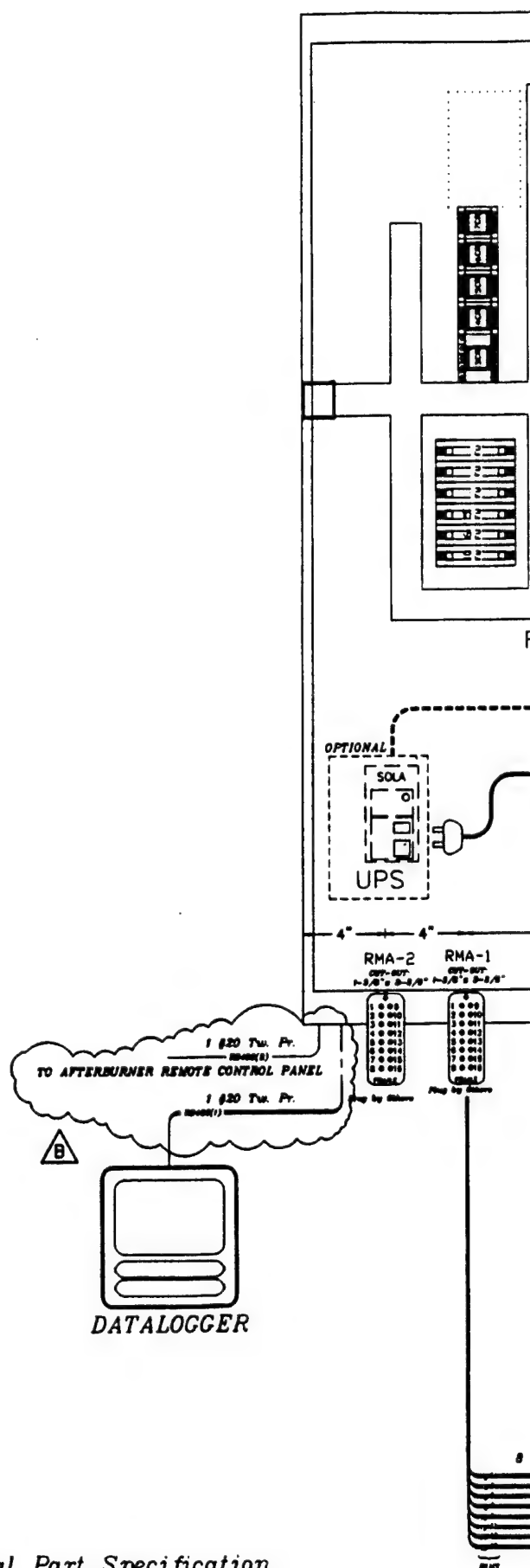


REV#	DATE	REVISION DESCRIPTION
B	8/1/96	FIELD MODIFICATIONS
A	5.25.95	AS BUILT
L & L SPECIAL FURNACE CO., INC.		
20 KENT RD. P.O. BOX 2129 ASTON, PA. 19014		
WIRING DIAGRAM		
Model FBG5610 Gas Fired Furnace		
DRAWN BY	S.N.L.	REV. CODE
DATE	5/25/95	SCALE .125
CHK	APP	B
JOB NO	WES-FBG5610	SHEET NO 2 of 4
FILE NAME	WES-FBG5610-01.DWG	MADE FROM FBG5610-01 (Hamilton Standard)

3

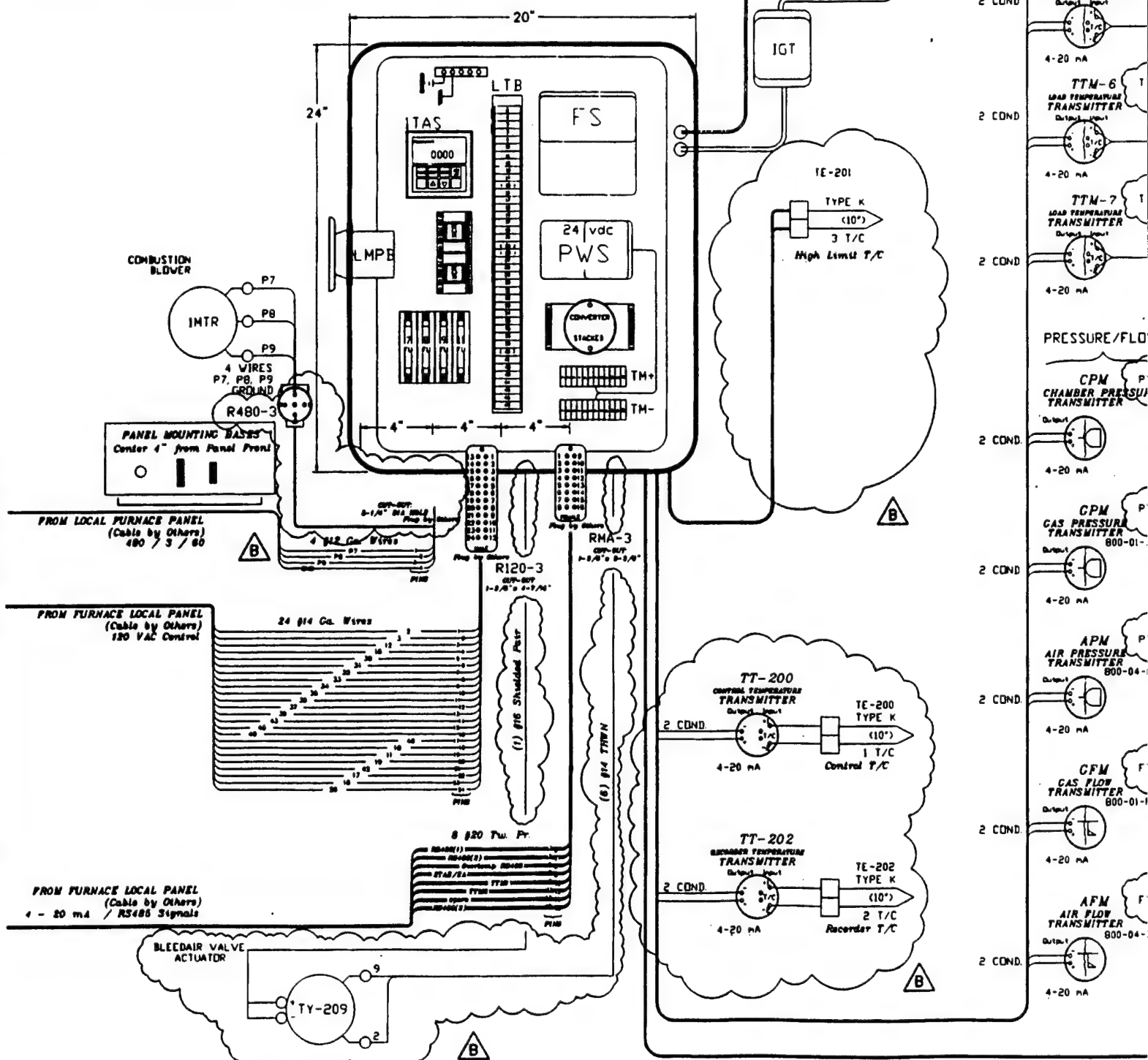


REMOTE CONTROL PANEL



Refer to Master Parts List 350 Series Numbers for individual Part Specification

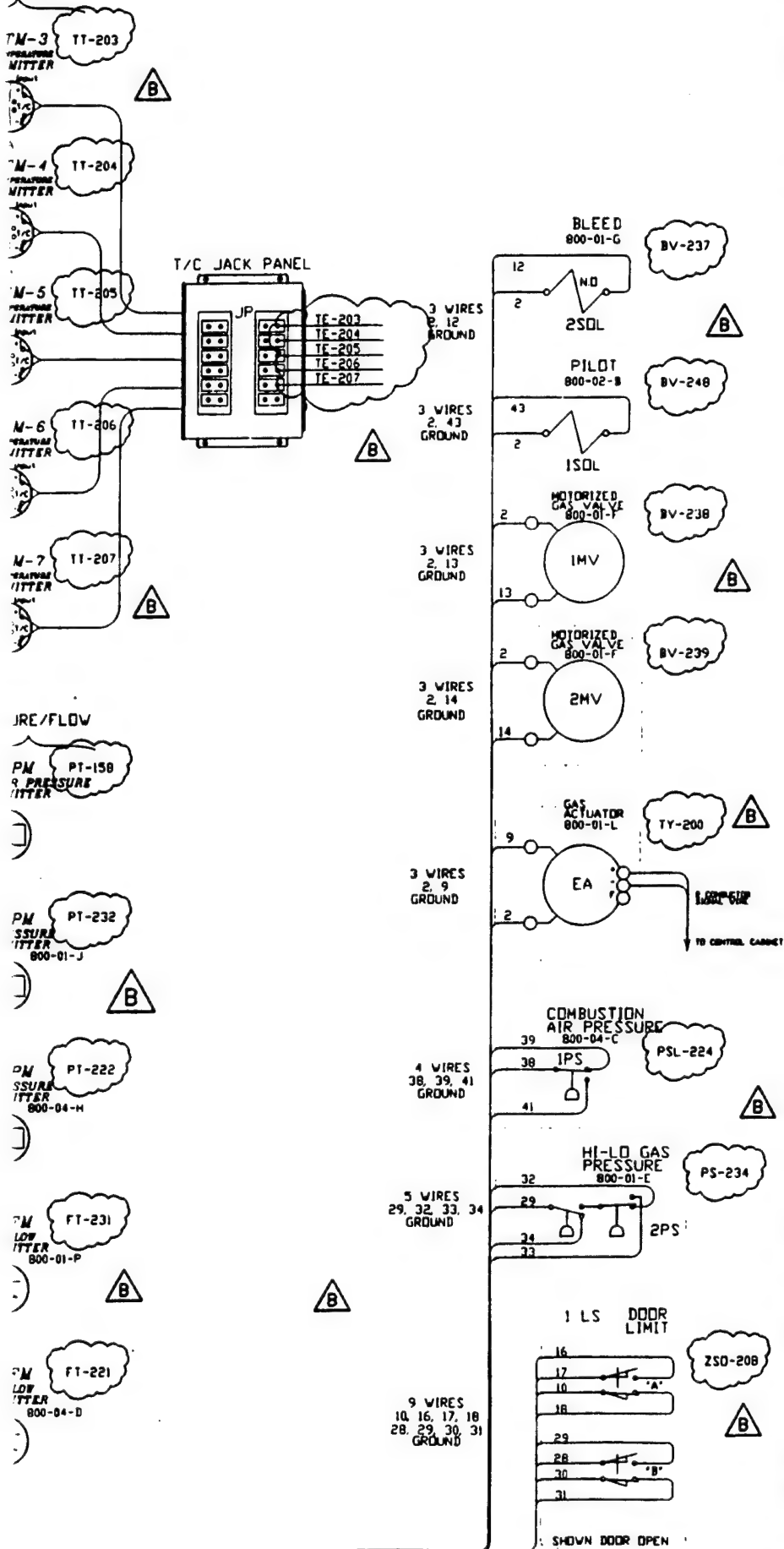
LOCAL FURNACE MOUNTED CABINET



Refer to Master Parts List 350 Series Numbers for individual Part Specification



RATURE



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FOR JOB # WES-FBG5610-1 (1294LL)

DATE: 9/28/94 BY: S.N.L.

APPROVED BY: COLLEEN A. PARKER

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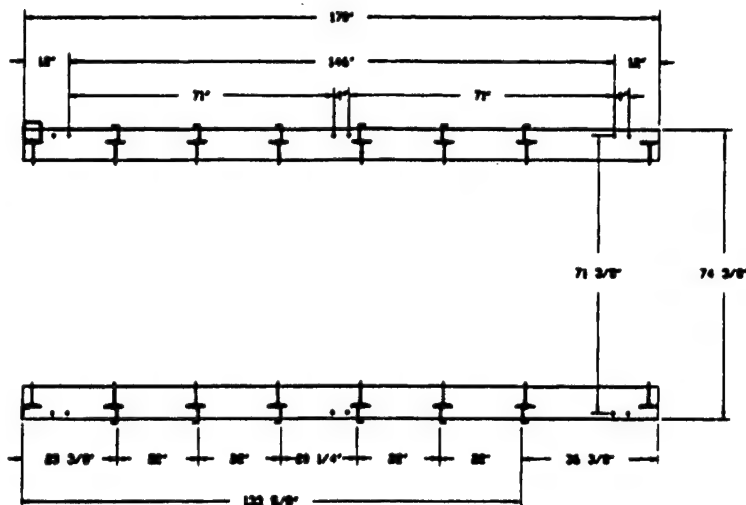
20 KENT RD. P.O. BOX 2129 ASTON, PA. 19014

WIRING DIAGRAM
Model FBG5610 Gas Fired Furnace

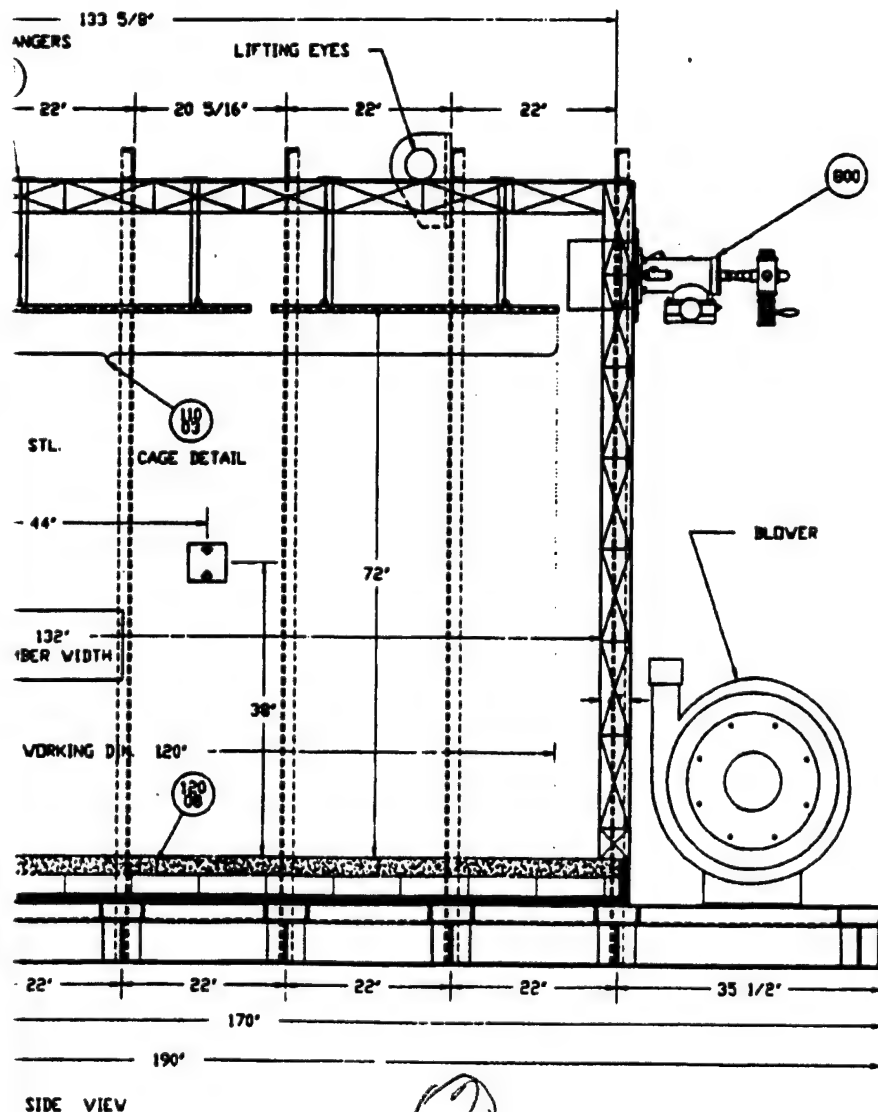
DATE	5/25/95	SCALE	.125	REV. CODE	B	DRAWING NO.	F928-01
CHK		APP					
JOB NO.	WES-FBG5610	SER NO.	1294LL			SHEET NO.	4 of 4
FILE NAME	1294LL-01	MADE FROM	1294LL-01 (HARDWARE SHEDDING)				

2

MECHANISM



FOUNDATION LAYOUT



SIDE VIEW

MAJOR SPECIFICATIONS

VOLTAGE	480 VAC/ 3/ 60
HP / AMPS	2 HP / 10 AMPS
MAXIMUM BTUS/HOUR	1,000,000
GAS INLET PRESSURE	5 PSI
MAX TEMP	1200°F
WORKING DIMENSIONS	54' V x 72' H x 120' D
CHAMBER DIMENSIONS	60' V x 84' H x 132' D
HEARTH	CASTABLE SECTIONS
MAX LOAD	3000 Lbs
GAS BURNER SYSTEM	ECLIPSE HVTA 104
ATMOSPHERE	AIR
CIRCULATION	BURNER VELOCITY
DOOR	DOUBLE PIVOTED HORIZONTAL
PAINT / FINISH	BLACK HIGH TEMP PRIMER WITH GREY-GREEN ENAMEL

CERTIFIED FOR CONSTRUCTION

FOR JOB # WES-FBG5610-1SERIAL NO: S/N 1294LLDATE: 10.11.94 BY: Gregory D. LawickiAPPROVED BY: COLLEEN A. PARKERDATE: 8/1/94 (CUSTOMER)

NOTES:

- SEE WESTON DRAWINGS 1300-01, 02, & 03 FOR EXHAUST DUCT MODIFICATIONS.

DO NOT SCALE THIS DRAWING.
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REV#	DATE	REVISION DESCRIPTION



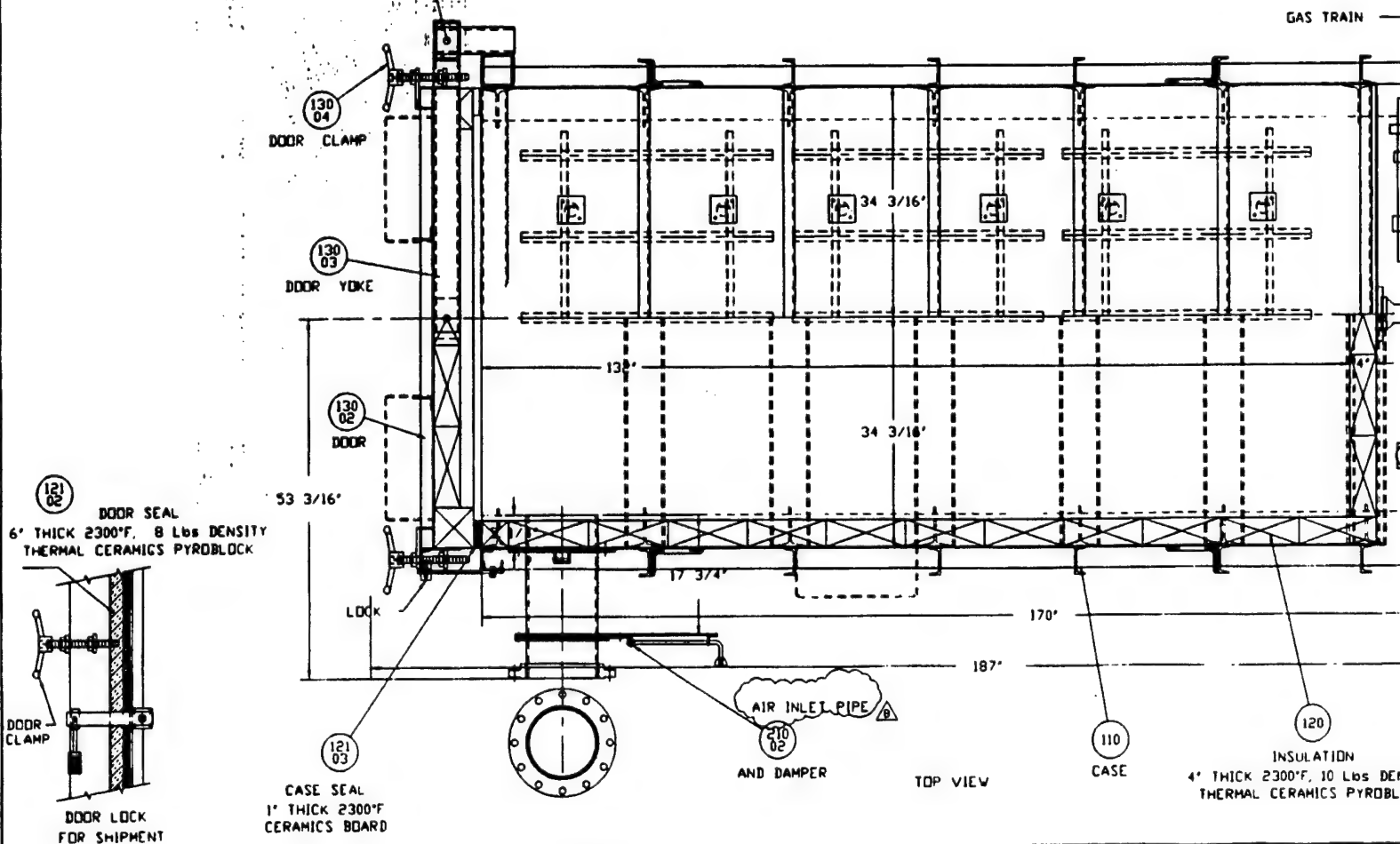
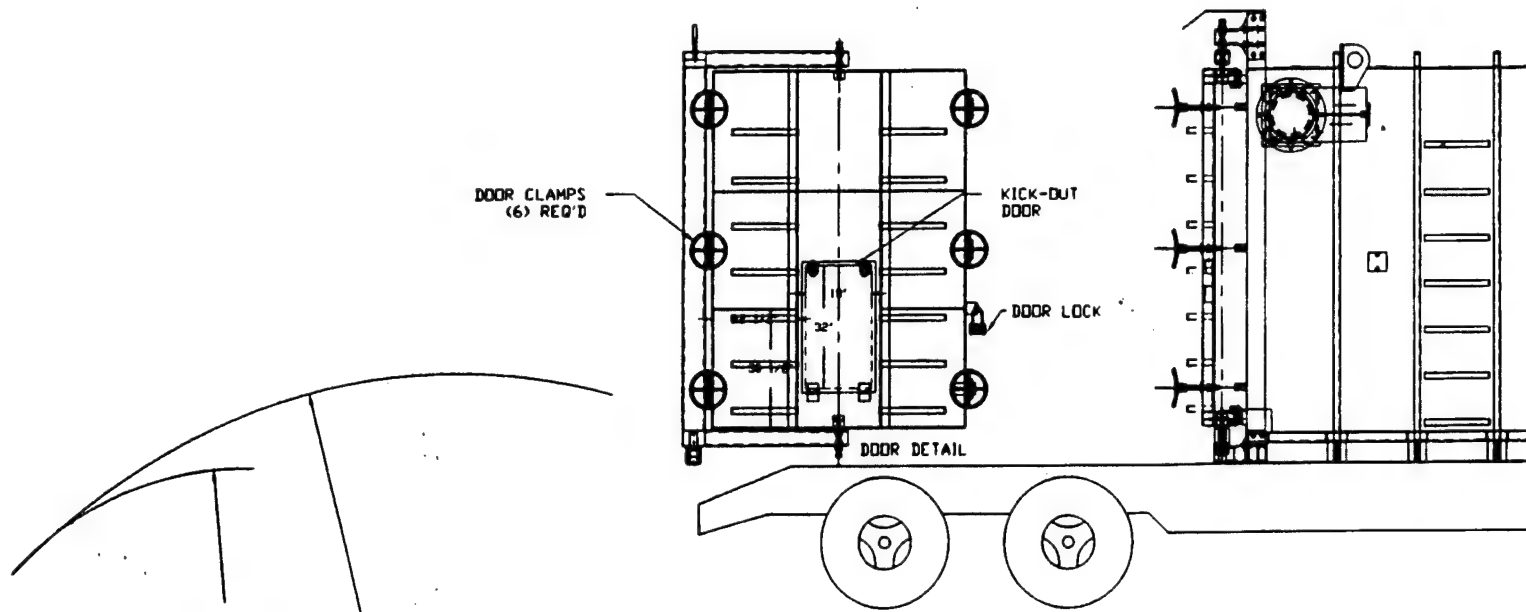
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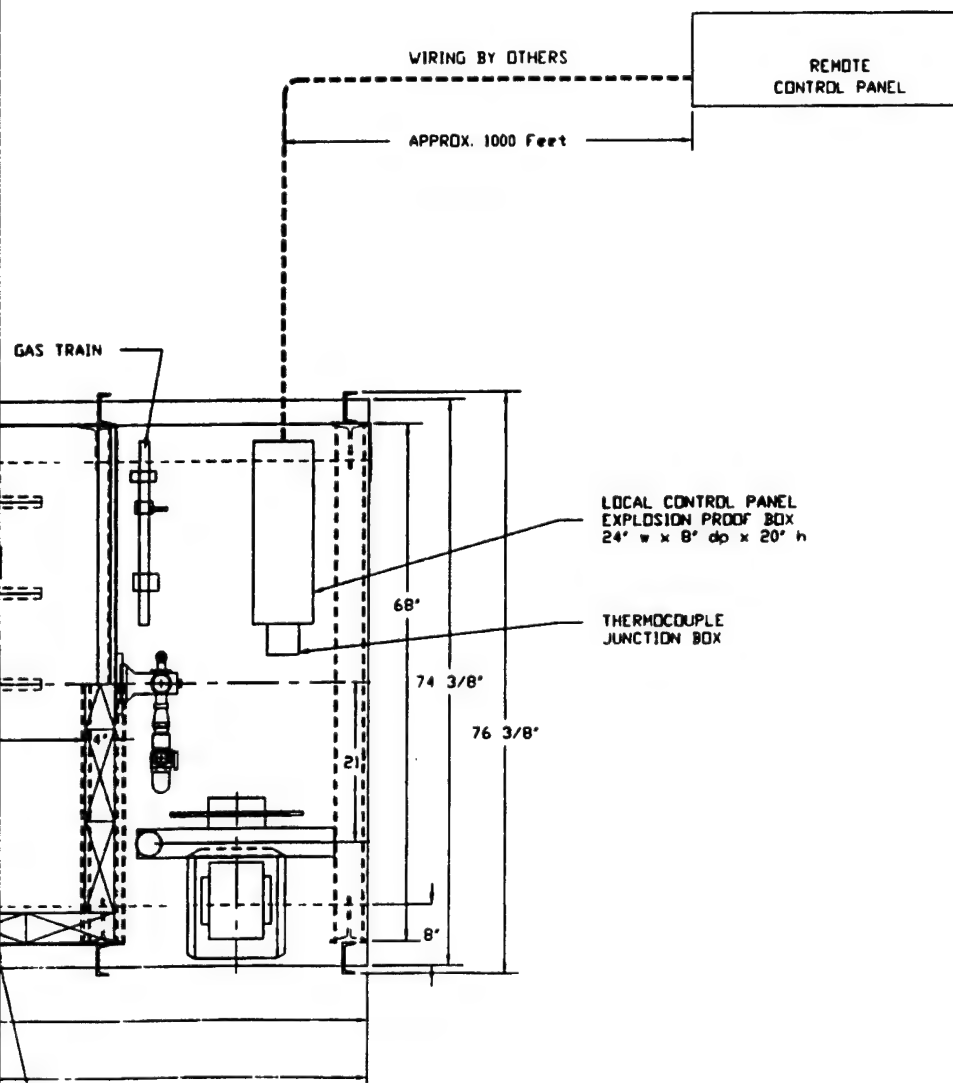
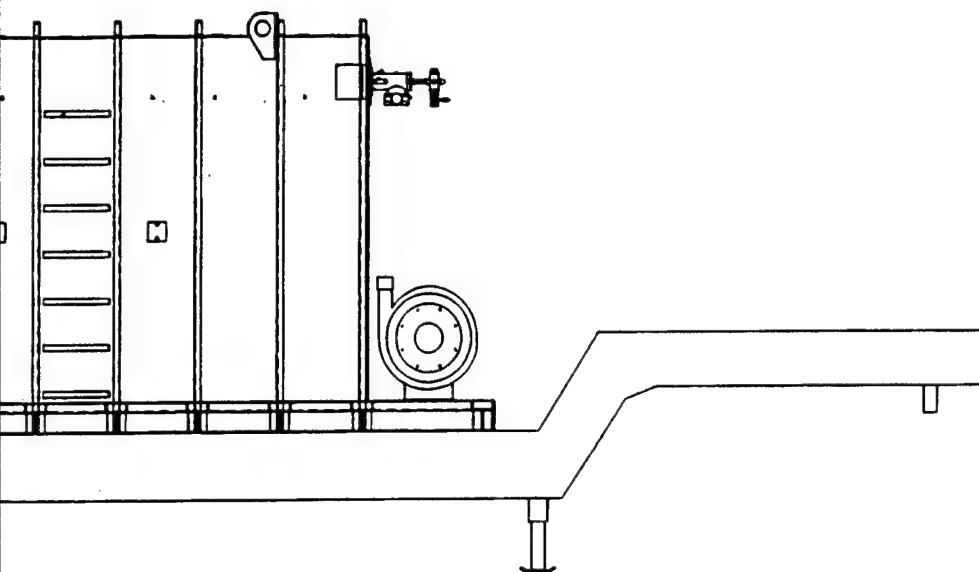
30 KENT RD. P.O. BOX 2129 ASTON, PA. 19014

FILE

MODEL FBG5610
GENERAL DIMENSION
AND
ASSEMBLY

DRAWN BY	Andre Merdjanian	REV CODE	B	DRAWING NO.	F928-02
DATE	9-28-94	SCALE	-		
CHK		APP			
QCD NO.	WES-FBG5610-1	SER NO.	1294LL	SHEET NO.	1 of 2
FILE NAME	WES-FBG5610-F928-02	MADE FROM	SCRATCH		





MAJOR SPECIFICATIONS

VOLTAGE	480 VAC / 3 / 60
HP / AMPS	2 HP / 10 AMPS
MAXIMUM BTUS/HOUR	1,000,000
GAS INLET PRESSURE	5 PSI
MAX TEMP	1200°F
WORKING DIMENSIONS	54" W x 72" H x 120" D
CHAMBER DIMENSIONS	60" W x 84" H x 132" D
HEARTH	CASTABLE SECTIONS
MAX LOAD	3000 Lbs
GAS BURNER SYSTEM	ECLIPSE MVTA 104
ATMOSPHERE	AIR
CIRCULATION	BURNER VELOCITY
DOOR	DOUBLE PIVOTED HORIZONTAL
PAINT / FINISH	BLACK HIGH TEMP PRIMER WITH GREY-GREEN ENAMEL

CERTIFIED FOR CONSTRUCTION

FOR JOB # WES-FBG5610-1

SERIAL NO. S/N 1294LL

DATE 10.11.94 BY Gregory D. Lewicki

APPROVED BY: CA Parker

DATE 8/1/96 (CUSTOMER)

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REV	DATE	REVISION DESCRIPTION

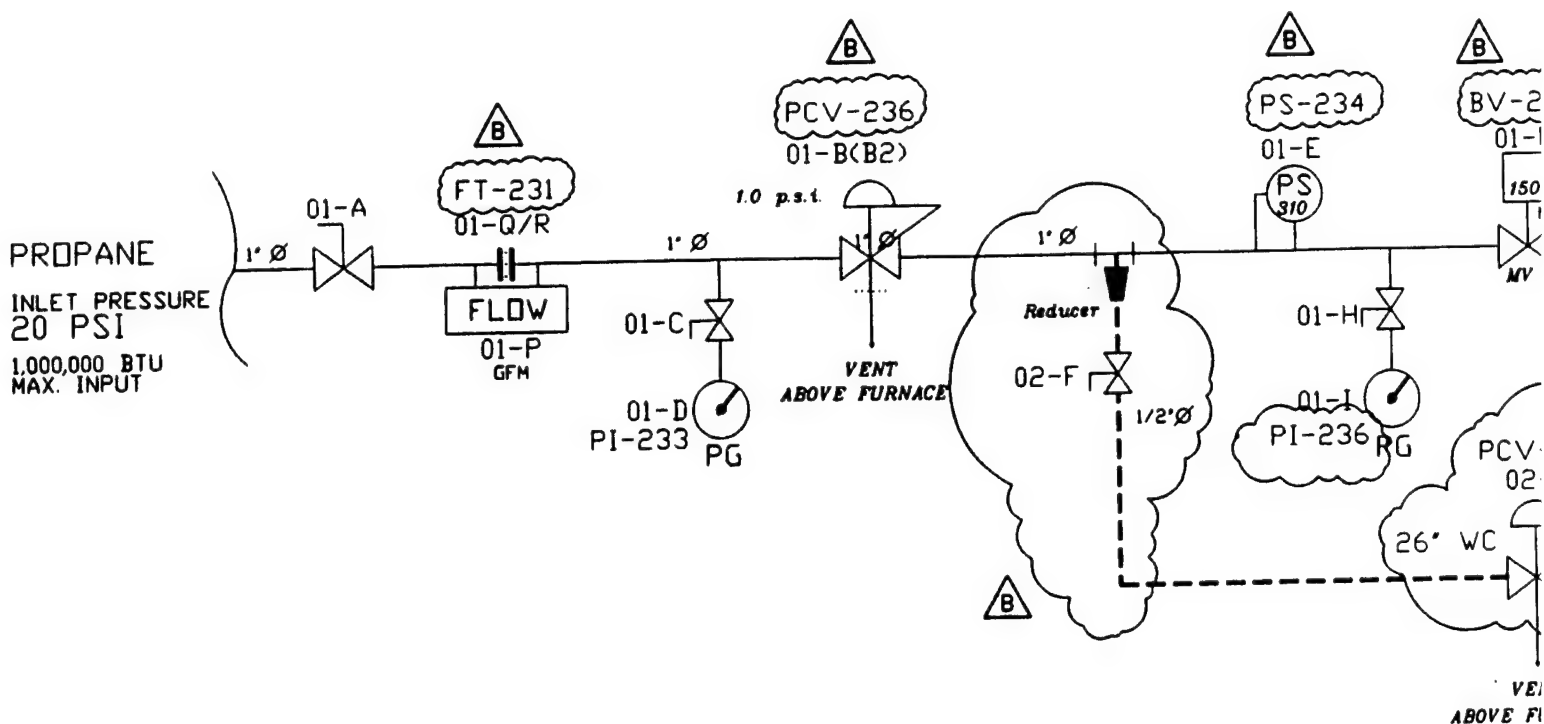


L & L SPECIAL FURNACE CO., INC

20 KENT RD. P.O. BOX 2129 ASTON, PA. 19014

MODEL FBG5610
GENERAL DIMENSION
AND
ASSEMBLY

DRAWN BY	Andre Merdjanian	REV CODE	B	DRAWING NO	F928-02
DATE	9-28-94	SCALE	-		
CHK		APP			
JOB NO	WES-FBG5610-1	SER NO	1294LL	SHEET NO	2 of 2
FILE NAME	F:\L\W\WESTON\FBG5610\F928-02	MADE FROM	SCRATCH		



LEGEND:

- 800-01-..... ----- MAIN GAS TRAIN
- 800-02-..... ----- PILOT GAS TRAIN
- 800-03-..... ----- HVTA SYSTEM
- 800-04-..... ----- COMBUSTION AIR SYSTEM
- 800-05-..... ----- FLAME SAFETY & IGNITION SYSTEM

150 } Cross Reference to Electrical Drawing (F928-01)
GFM

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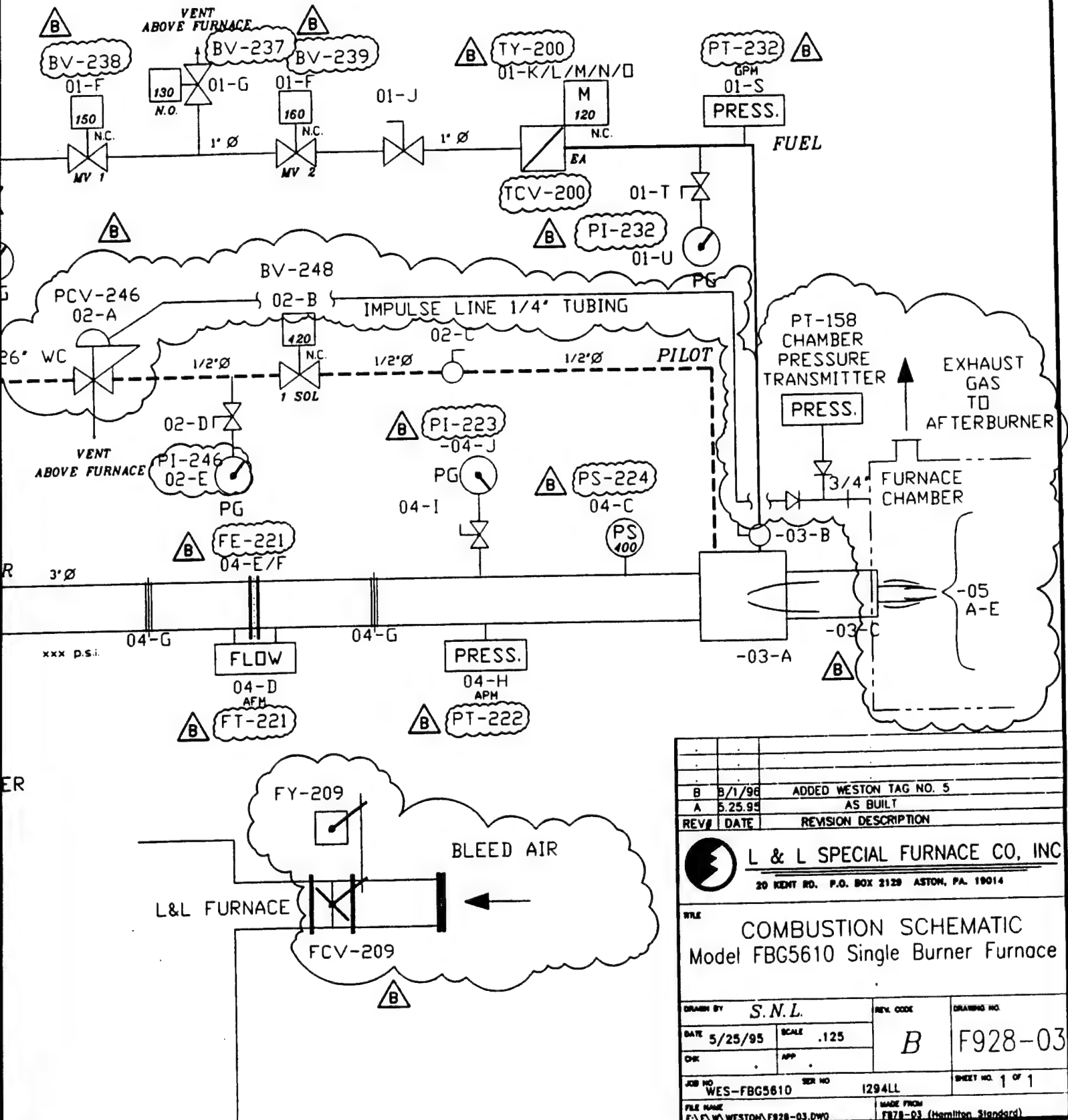
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FOR JOB # WES-FBG5610-1 (1294LL)

DATE : 9/28/94 BY : S.N.L.

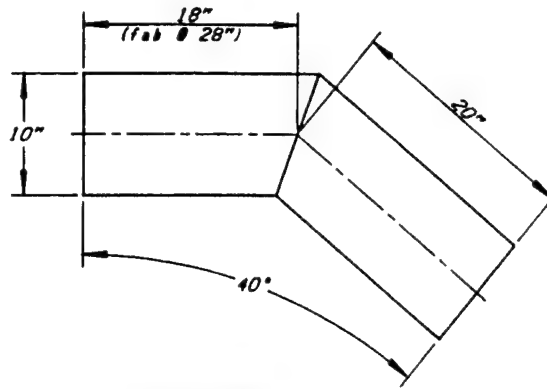
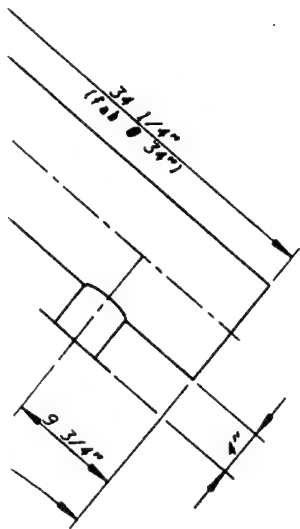
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DATE : _____

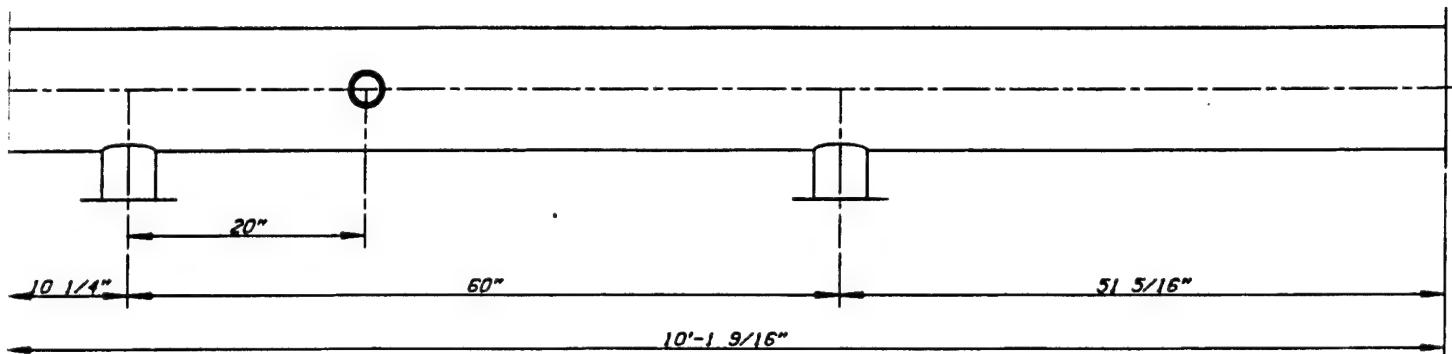


B	5/1/98	ADDED WESTON TAG NO. 5
A	5.25.95	AS BUILT
REV#	DATE	REVISION DESCRIPTION
L & L SPECIAL FURNACE CO., INC. 20 KENT RD. P.O. BOX 2129 ASTON, PA. 19014		
COMBUSTION SCHEMATIC Model FBG5610 Single Burner Furnace		
DRAWN BY <u>S.N.L.</u> DATE <u>5/25/95</u> CHK _____ JOB NO. <u>WES-FBG5610</u> FILE NAME <u>WES-FBG5610-03.DWG</u>	SCALE <u>.125</u> APP _____ SER NO. <u>1294LL</u> MADE FROM <u>F928-03 (Hamilton Standard)</u>	DRAWING NO. <u>B F928-03</u> SHEET NO. <u>1 OF 1</u>

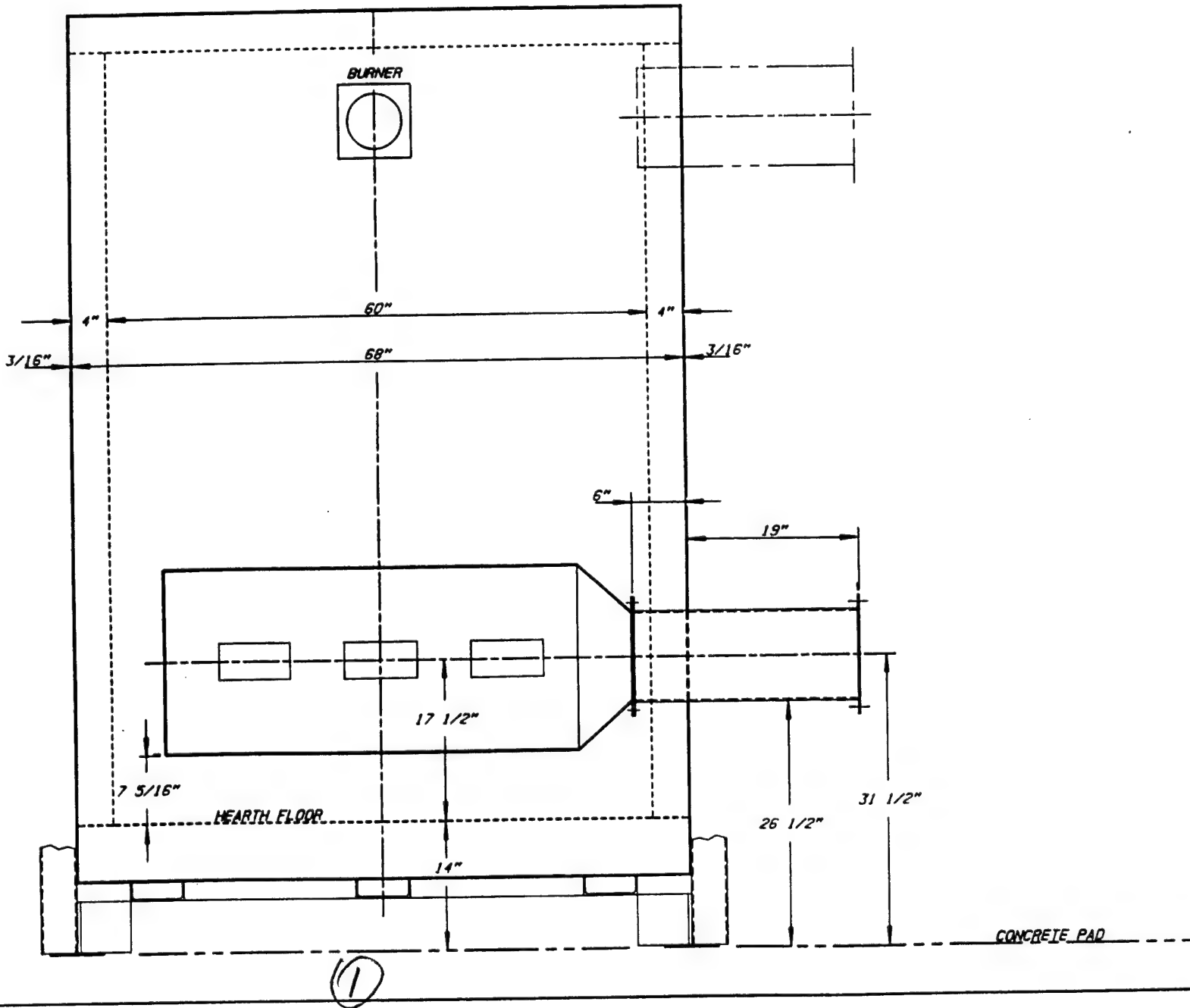
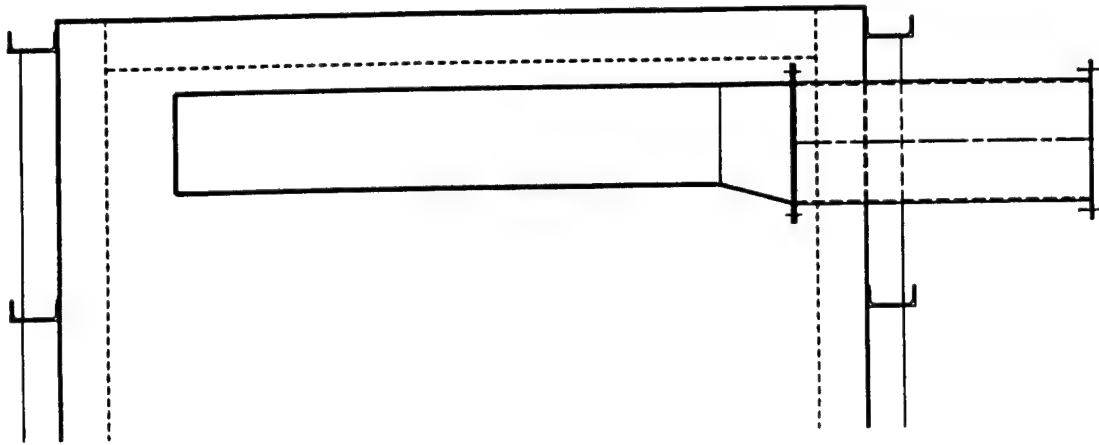
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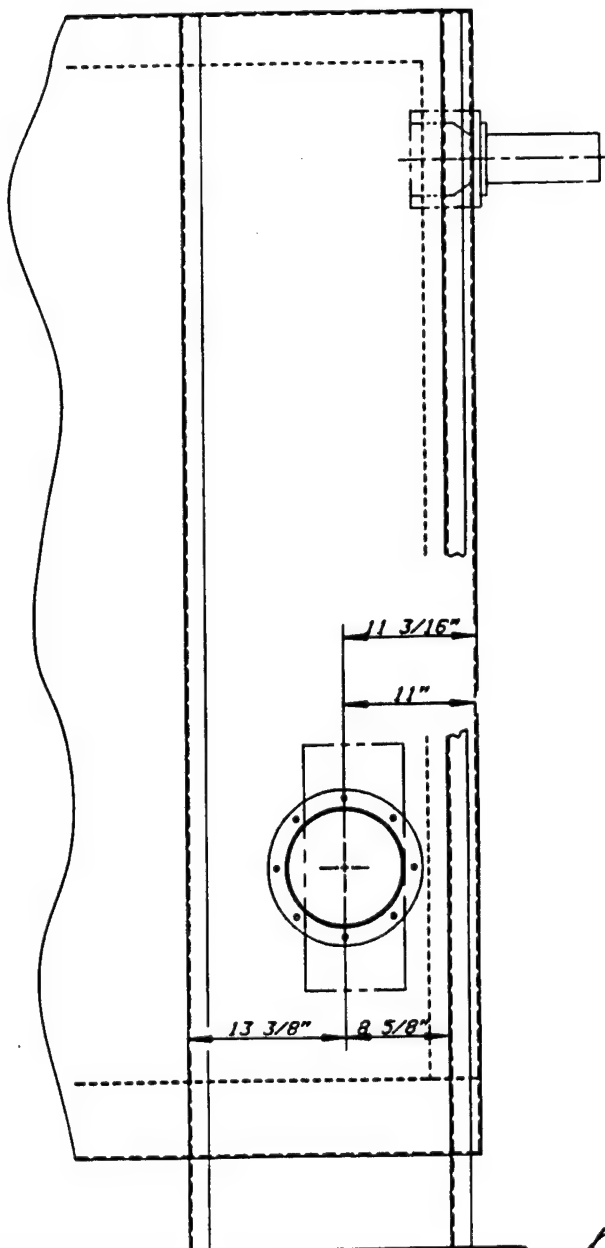


40° ELBOW
11 GA. STEEL




				HOT-GAS DECONTAMINATION SYSTEM		INTERCONNECT DUCT							
						DESIGN J. HYRE		DATE 12/27/95		DWG. NO. 1300-01		REV. NO. -	
- 12/27/95 AS-BUILT DRAWING NO. DATE APPR. REVISION						SCALE 1/2" = 1'-0"		P&ID NO. 02281-012-012		SHEET 1 OF 1			

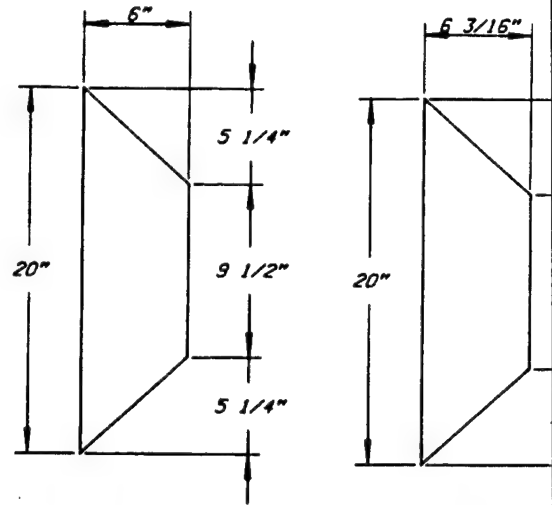




CRETE PAD

(2)

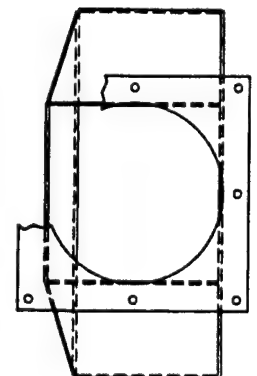
HOT-GAS DECONTAMINATION SYSTEM																																																
																																																
NEW CHESTER PENNSYLVANIA																																																
EXHAUST PLENUM ASSEMBLY																																																
DESIGN	J. HYRE	DATE	1/1/96	REV. NO.																																												
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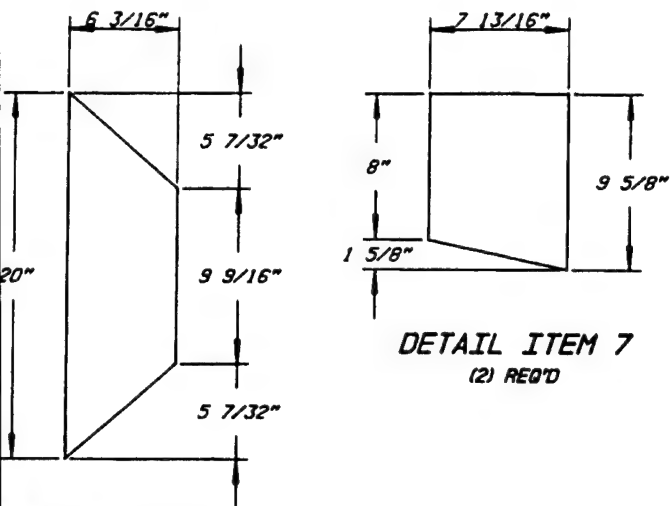
DETAIL ITEM
(1) REQ'D

3 1/8"

1 1/2"



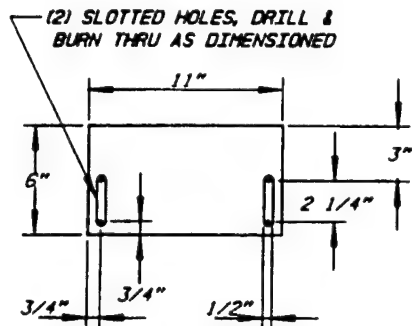
-	1/1/96		AS-BUILT DRAWING	
NO	DATE	APPR.	REVISION	



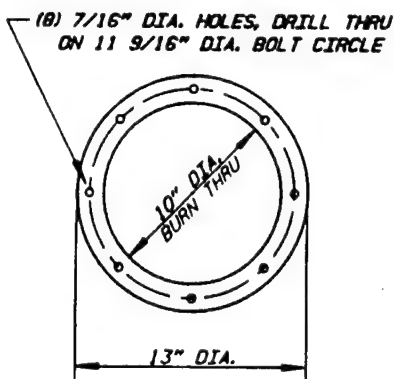
DETAIL ITEM 7
(2) REQ'D

BILL OF MATERIAL			
ITEM	REQD	DESCRIPTION	WGT
1	1	3/16" X 20" X 45 13/16" LG, HRS PLATE, A-36	
2	1	3/16" X 20" X 45 13/16" LG, HRS PLATE, A-36,(SEE DETAIL)	
3	2	3/16" X 8" X 45 13/16" LG, HRS PLATE, A-36	
4	1	3/16" X 8" X 20" LG, HRS PLATE, A-36	
5	1	3/16" X 6" X 20" LG, HRS PLATE, A-36,(SEE DETAIL)	
6	1	3/16" X 6 3/16" X 20" LG, HRS PLATE, A-36,(SEE DETAIL)	
7	2	3/16" X 7 13/16" X 9 5/8" LG,HRS PLATE,A-36,(SEE DETAIL)	
8	2	3/16" X 13" X 13" LG, HRS PLATE, A-36,(SEE DETAIL)	
9	3	3/16" X 6" X 11" LG, HRS PLATE, A-36,(SEE DETAIL)	
10	1	3/16" X 10"ID X 13"OD, HRS PLATE, A-36,(SEE DETAIL)	
11	1	9 5/8"ID X 10"OD X 25" LG,ROLLED DUCT, HRS PLATE, A-36	
12	6	3/8-16 X 1" LG, SS HEX BOLTS w/NUTS	
13	8	3/8-16 X 1 1/2" LG, SS HEX BOLTS w/NUTS	
TOTAL			

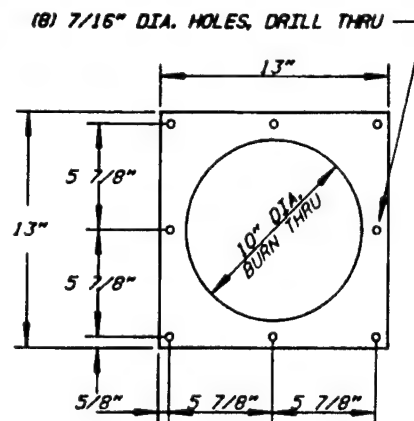
DETAIL ITEM 6
(1) REQ'D



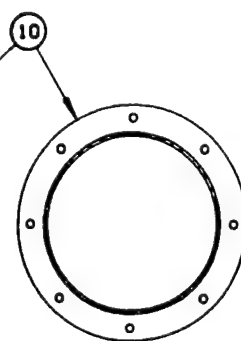
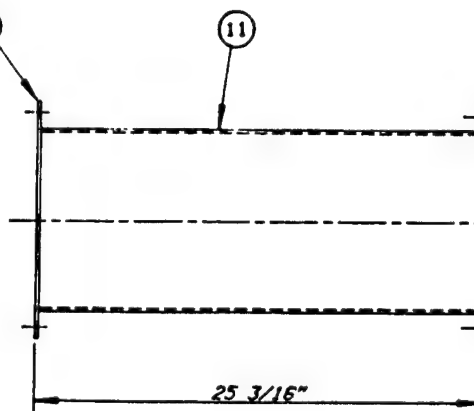
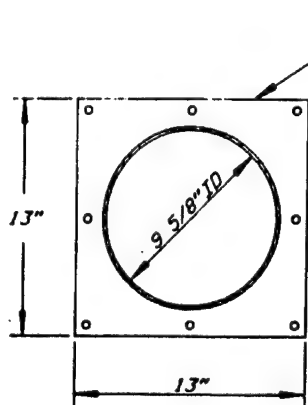
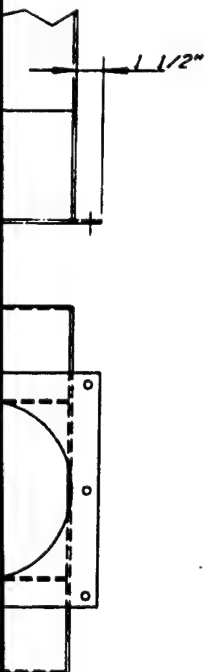
DETAIL ITEM 9
(3) REQ'D



DETAIL ITEM 10
(1) REQ'D



DETAIL ITEM 8
(2) REQ'D



WELDMENT ITEMS 8, 10, & 11

	HOT-GAS DECONTAMINATION SYSTEM		EXHAUST PLENUM DETAILS	

THERMAL OXIDIZER EQUIPMENT

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRIPTION</u>
OA	4	8/1/96	COVER SHEET
1X	2	3/10/95	SHIPPING CLEARANCE
2X	1	3/10/95	SHIPPING CLEARANCE
1A	3	8/17/96	GENERAL ARRANGEMENT
1B	2	8/17/96	GENERAL ARRANGEMENT
1SA	1	3/10/95	STEEL ARRANGEMENT
1SB	2	6/1/96	STEEL ARRANGEMENT
1SC	2	5/26/95	STEEL ARRANGEMENT
1SD	1	3/10/95	STEEL ARRANGEMENT
2A	2	3/10/95	FOUNDATION PLAN
FTA120-1	3	8/1/96	FUEL TRAIN ASSEMBLY
FTA120-2	3	8/1/96	FUEL TRAIN ASSEMBLY
AES -5-53	0	1/11/95	SIGHT PORT w/ VALVE

①

THERMAL OXIDIZER EQUIPMENT

ER EQUIPMENT

DRAWING DESCRIPTION

COVER SHEET

SHIPPING CLEARANCES

SHIPPING CLEARANCES

GENERAL ARRANGEMENT: PLAN & ELEV.

GENERAL ARRANGEMENT: SECTIONS

STEEL ARRANGEMENT: AFTERBURNER

STEEL ARRANGEMENT: STACK & DETAIL

STEEL ARRANGEMENT: DETAILS

STEEL ARRANGEMENT: SKID & DETAILS

FOUNDATION PLAN

FUEL TRAIN ASSEMBLY - AFTERBURNER

FUEL TRAIN ASSEMBLY - AFTERBURNER

RIGHT PORT w/ VALVE - 4" DIAMETER

(2)

JOB: IJ-

SERVICE: AFTER

CUSTOMER: ROY F

LOCATION: ALP

DRAWING INDEX

STANDARD DRAWING INI

AES-5-53

4" x 6" SIGHT PORT W

DWG. NO.	REV	TITLE
0A	3	COVER SHEET
1X	2	SHIPPING CLEARANCE
2X	1	SHIPPING CLEARANCE
1A	2	GENERAL ARRANGEMENT - PLAN & ELEV.
1B	1	GENERAL ARRANGEMENT - SECTIONS
1SA	1	STEEL ARRANGEMENT - AFTER BURNER
1SB	1	STEEL ARRANGEMENT - STACK & DETAILS
1SC	1	STEEL ARRANGEMENT - DETAILS
1SD	1	STEEL ARRANGEMENT - SKID & DETAILS
2A	2	FOUNDATION PLAN
PID120	0	P & I D AFTERBURNER
LCP120-1	0	LOCAL CONTROL PANEL ASSEMBLY
LCP120-2	0	LOCAL CONTROL PANEL ASSEMBLY
LCP120-3	0	LOCAL CONTROL PANEL ASSEMBLY
RCP120-1	0	REMOTE CONTROL PANEL ASSEMBLY
RCP120-2	0	REMOTE CONTROL PANEL ASSEMBLY
ES120-1	0	ELECTRICAL SCHEMATIC AFTERBURNER
ES120-2	0	ELECTRICAL SCHEMATIC AFTERBURNER
ES120-3	0	ELECTRICAL SCHEMATIC AFTERBURNER
ES120-4	0	ELECTRICAL SCHEMATIC AFTERBURNER
ES120-5	0	ELECTRICAL SCHEMATIC AFTERBURNER
IC120-1	0	INTERCONNECTION DIAGRAM AFTERBURNER
IC120-2	0	INTERCONNECTION DIAGRAM AFTERBURNER
IC120-3	0	INTERCONNECTION DIAGRAM AFTERBURNER
FTA120-1	3	FUEL TRAIN ASSEMBLY AFTERBURNER
FTA120-2	3	FUEL TRAIN ASSEMBLY AFTERBURNER
FTF120	0	FUEL RACK FABRICATION

9			
8			
7			
6			
5			
4	CAP	8/1/96	JLB
3	OU	3/17/96	JLB
2	OU	2/15/95	JLB
1	OU	1/11/95	JLB
NO	BY	DATE	CHK'D

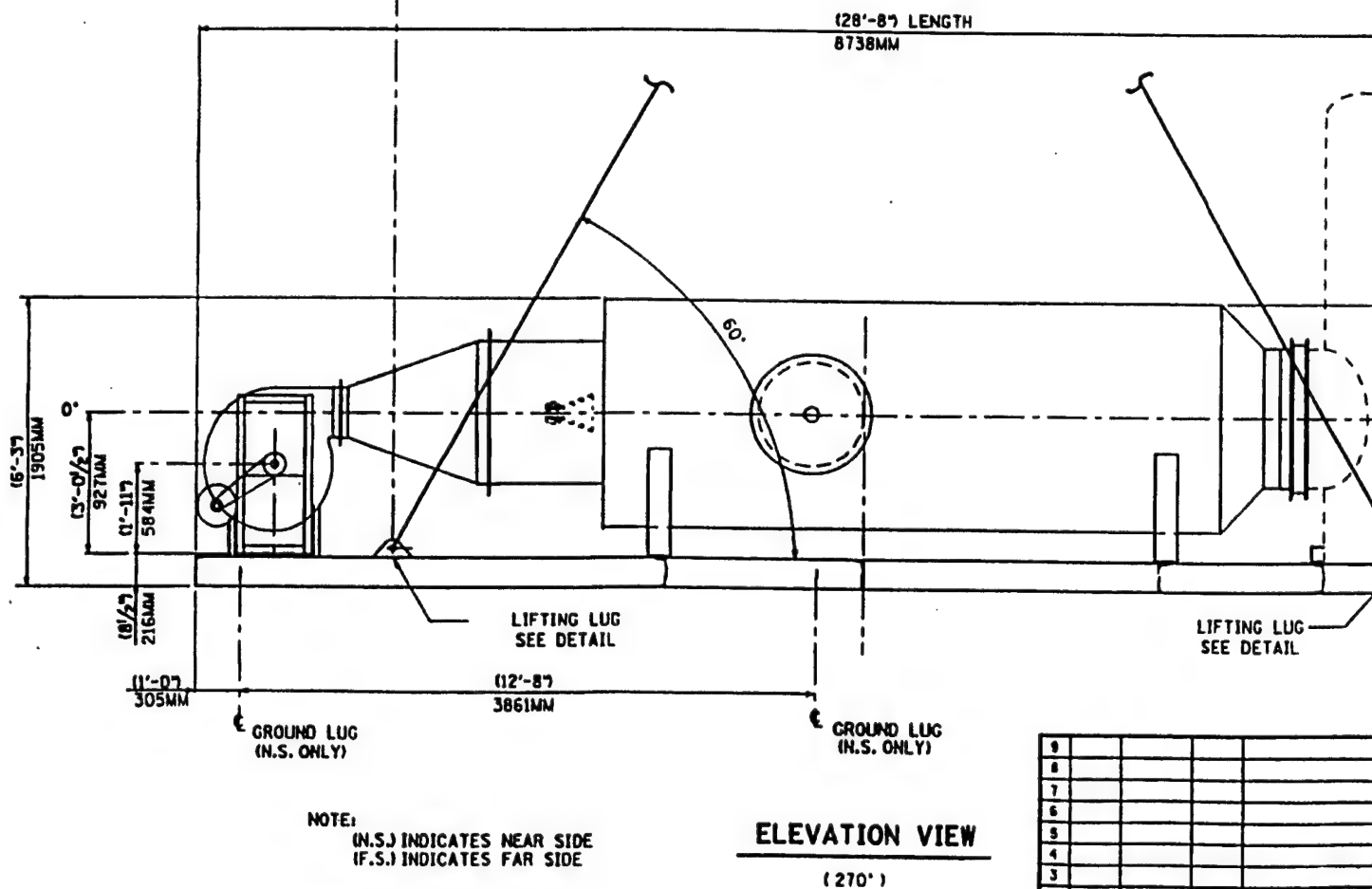
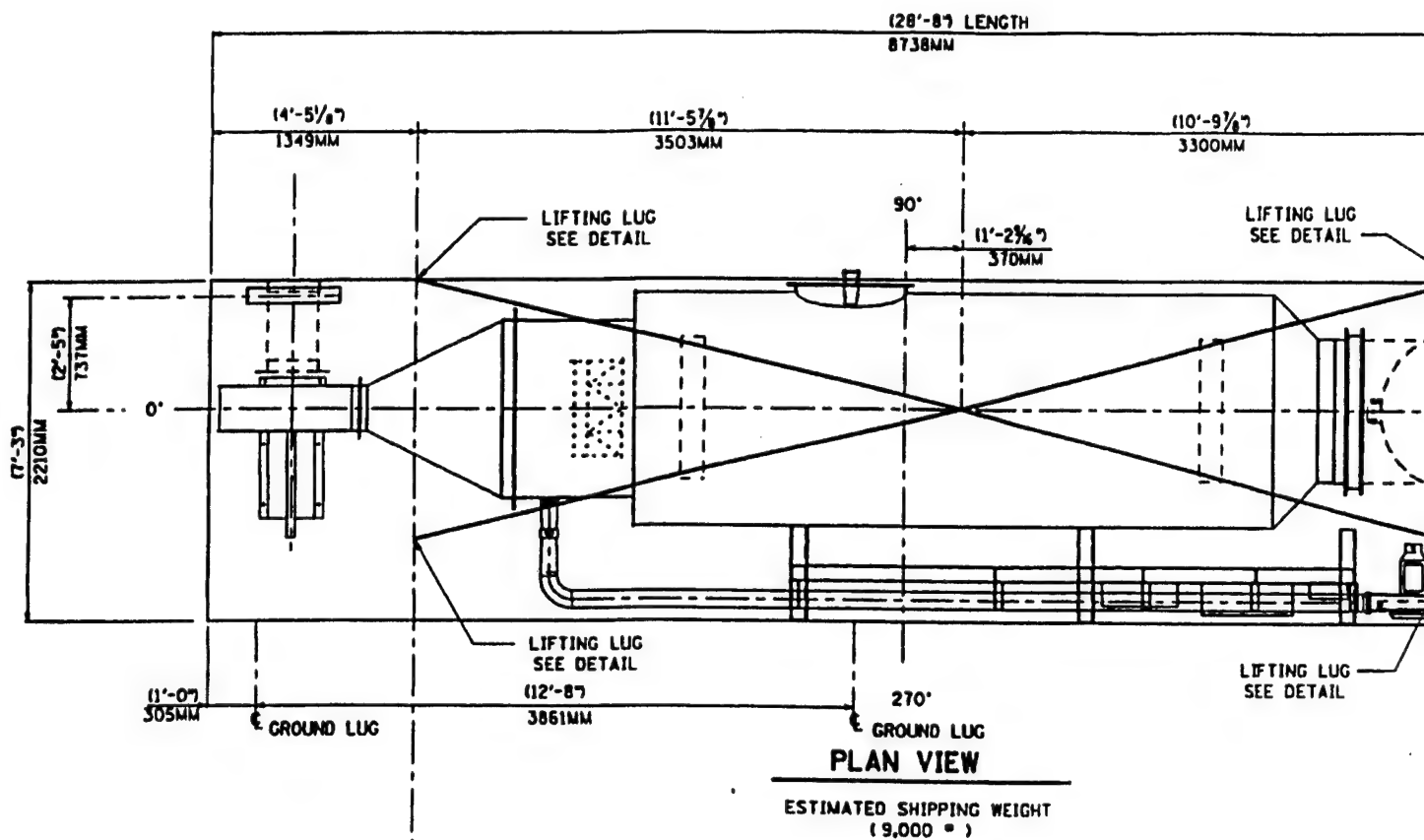
R BURNER SYSTEM

ALPINE, ALABAMA

4" Ø SIGHT PORT W/VALVE

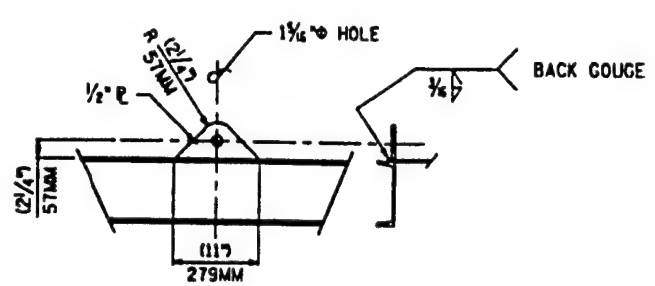
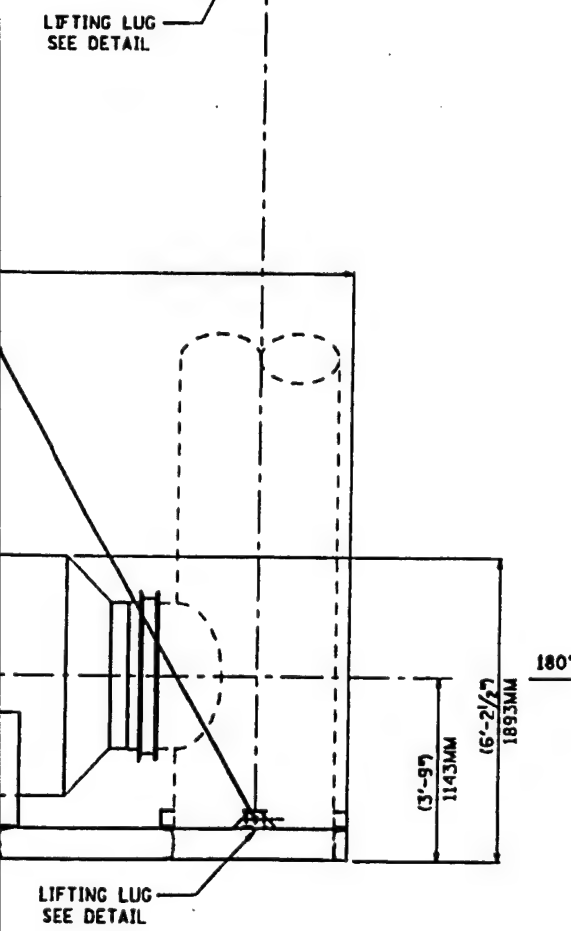
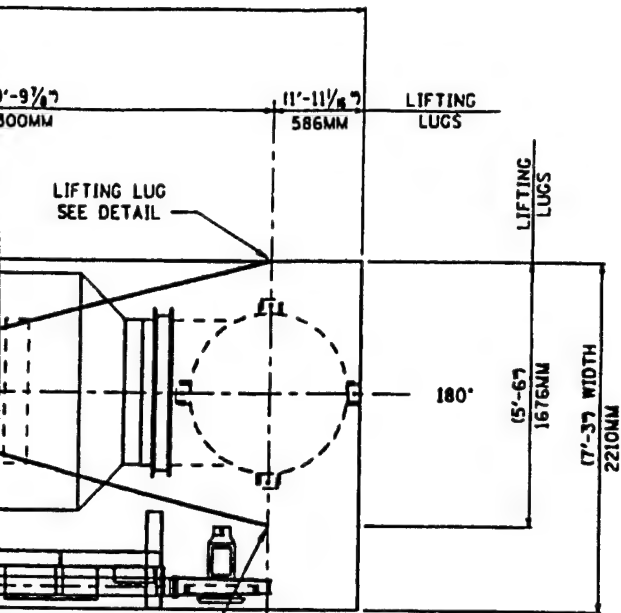
1. ALL STRUCTURAL STEEL TO BE ASTM A36 UNLESS NOTED.
2. FABRICATE PER AISC 9TH. EDITION
3. ALL STRUCTURAL WELDING TO BE PER AWS D1.1

CADD DWG: U120-0A.DGN
CADD DWG: U1200A.DWG



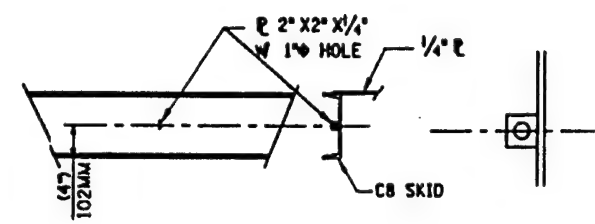
9				
8				
7				
6				
5				
4				
3				
2	QU	3/10/95	JLB	REVISED INLET DU
1	QU	1/10/95	JLB	REVISED PER CUSI
NO.	BY	DATE	CHK'D	

1



LIFTING LUG

(4 THUS)



GROUND LUG

(2 THUS)

NOTES:

1. FOR LIFTING PURPOSES, WEIGHTS OF SECTIONS SHALL BE AS SHIPPED WEIGHT TAKEN FROM THE FREIGHT BILL OF LADING FOR THE PARTICULAR SECTION. ALL OTHER WEIGHTS ARE TO BE CONSIDERED ESTIMATES ONLY AND NOT SUITABLE FOR THIS PURPOSE. IF THE BILL OF LADING DOES NOT INCLUDE THIS WEIGHT, ARRTech ENGINEERING MUST BE CONTACTED FOR THE AS SHIPPED WEIGHT.
2. LENGTH, WIDTH AND HEIGHT SHOWN ARE APPROXIMATE DIMENSIONS. ACTUAL SHIPPING DIMENSIONS ARE TO BE VERIFIED BY SHIPPING AGENT AT FINAL FABRICATION SITE. OVERALL DIMENSIONS FOR PERMITS SHALL BE MEASURED BY THE SHIPPING AGENT AFTER SECTIONS ARE LOADED FOR SHIPMENT.
3. ESTIMATED WEIGHTS INCLUDE ALL SHOP INSTALLED REFRACTORY.

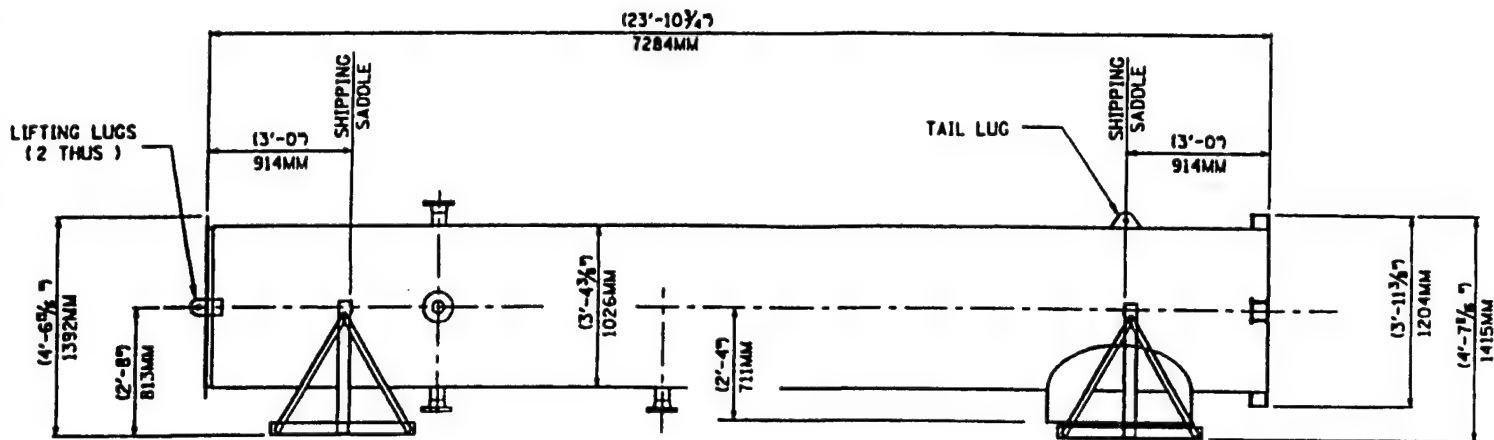
REV	CHK'D	REVISION DESCRIPTION
95	JLB	REVISED INLET DUCT / ADD PANEL LOCATION & GROUND LUGS
95	JLB	REVISED PER CUSTOMER COMMENTS

JOB INFORMATION	
CUSTOMER:	ROY F. WESTON, INC.
P.O. NO.:	43366
JOB SITE:	ALPINE, AL.
END USER:	U.S. ARMY ENVIRONMENTAL CENTER
SERVICE:	AFTER BURNER SYSTEM
ARRTECH JOB NO.:	1J-120



Arrleach
TULSA, OKLAHOMA
ENVIRONMENTAL SYSTEMS, INCORPORATED
BLOOMINGTON, MINNESOTA

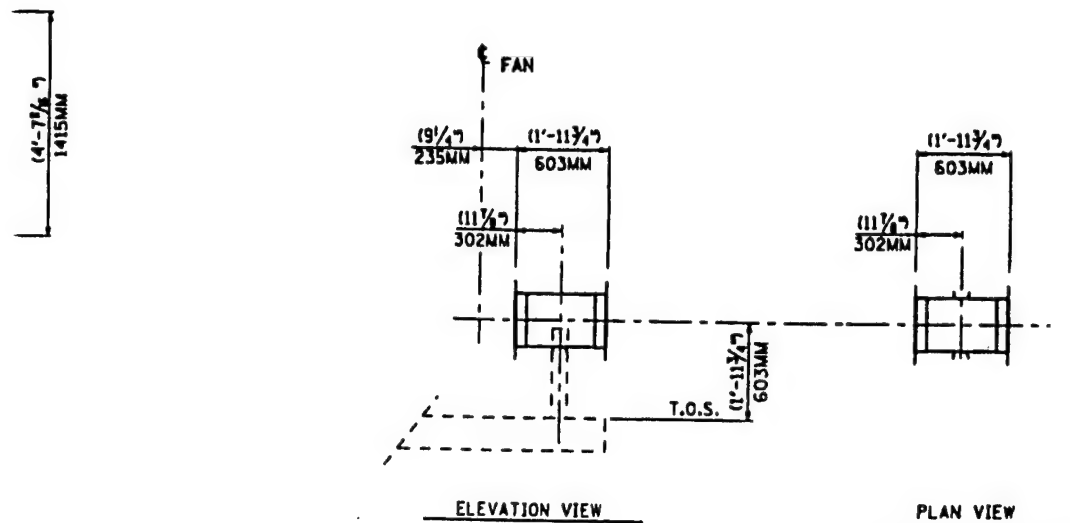
DRAWING TITLE			
SHIPPING CLEARANCES			
DRAWN BY	OU	DATE	10/13/94
CHK'D BY	JLB	DATE	1/10/95
APPR'D BY		DATE	/ /
JOB NO.	1J-120		
DRAWING NO.	1X		
REVISION NO.	62		



STACK SECTION
 ESTIMATED SHIPPING WEIGHT
 (4,500 •)

9				
8				
7				
6				
5				
4				
3				
2				
1	QU	3/10/95	JLB	REL
NO.	BY	DATE	CHK'D	

1



AIR INLET DUCT

ESTIMATED SHIPPING WEIGHT
(175 •)

NOTES:

1. FOR LIFTING PURPOSES, WEIGHTS OF SECTIONS SHALL BE AS SHIPPED WEIGHT TAKEN FROM THE FREIGHT BILL OF LADING FOR THE PARTICULAR SECTION. ALL OTHER WEIGHTS ARE TO BE CONSIDERED ESTIMATES ONLY AND NOT SUITABLE FOR THIS PURPOSE. IF THE BILL OF LADING DOES NOT INCLUDE THIS WEIGHT, ARRTech ENGINEERING MUST BE CONTACTED FOR THE AS SHIPPED WEIGHT.
2. LENGTH, WIDTH AND HEIGHT SHOWN ARE APPROXIMATE DIMENSIONS. ACTUAL SHIPPING DIMENSIONS ARE TO BE VERIFIED BY SHIPPING AGENT AT FINAL FABRICATION SITE. OVERALL DIMENSIONS FOR PERMITS SHALL BE MEASURED BY THE SHIPPING AGENT AFTER SECTIONS ARE LOADED FOR SHIPMENT.
3. ESTIMATED WEIGHTS INCLUDE ALL SHOP INSTALLED REFRACTORY.

JOB INFORMATION		DRAWING TITLE	
CUSTOMER: ROY F. WESTON, INC.		SHIPPING CLEARANCES	
P.O. NO.: 43368			
JOB SITE: ALPINE, AL.			
END USER: U.S. ARMY ENVIRONMENTAL CENTER			
SERVICE: AFTER BURNER SYSTEM			
ARRTECH JOB NO.: 1J-120			
J.B. REMOVED ACCESS DOOR & REVISED INLET DUCT		DRAWN BY: DJ	
CHK'D: REVISION DESCRIPTION		DATE: 1/10/95	
		JDB NO.: 1J-120	
		DATE: 1/11/95	
		DRAWING NO.: 2X	
		REVISION NO.: (1)	
		APPR'D BY:	
		DATE: / /	

Arrtech

TULSA, OKLAHOMA

ENVIRONMENTAL SYSTEMS, INCORPORATED

BLOOMINGTON, MINNESOTA

(28'-8")
8738MM

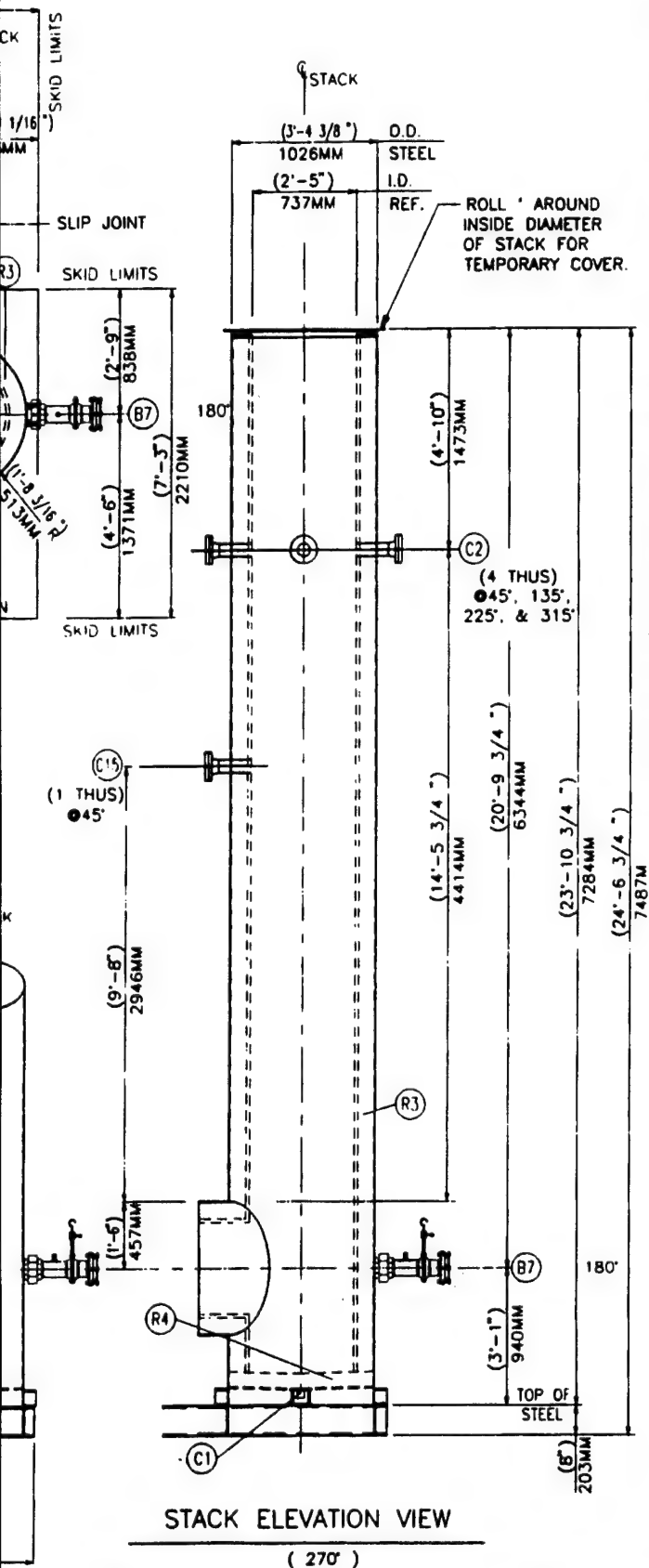


(1 THUS)
045'



ELEVATION VIEW
(270°)

9				
8				
7				
6				
5				
4				
3	AH	8/17/96	ad	FIELD
2	OU	3/10/95	JLB	ADDED
1	OU	1/10/95	JLB	REVISED
NO.	BY	DATE	CHK'D	



MISCELLANEOUS COMPONENTS

MK	QTY	DESCRIPTION
B1	ONE	MAXON AIRFLOW BURNER - LV5-B-24-120
		W/1 - 12" & 1 - 6" STRAIGHT SECTIONS (SEE DATA SHEETS)
B2	ONE	I.D. FAN - CHICAGO BLOWER - SIZE "13D" (SEE DATA SHEETS)
B3	ONE	MAXON - PREMIXING TUBE - HG SERIES - SIZE 4" (SEE DATA SHEETS)
B4	ONE	F.D. FAN - MAXON FG SERIES - C-1450-12 (SEE DATA SHEETS)
B5	ONE	10 GA. CORBEL (304SS)
B6	ONE	27" BOLTED ACCESS DOOR - AFTER BURNER
B7	2	4" SIGHT PORT - AES-5-53
B8	ONE	3/16" DISTRIBUTION PLATE

MISCELLANEOUS CONNECTIONS

MK	QTY	DESCRIPTION
C1	ONE	1 1/2" (SCH 20) PIPE (304SS) STACK FLOOR DRAIN
C2	4	4" - 300# RFWN W/BLIND & 310SS PIPE EPA SAMPLE PORTS
C3	ONE	1" 3000# CPLG W/PLUG & 310SS PIPE TW-(145) 3
C4	ONE	1 1/2" 3000# CPLG W/PLUG & 310SS PIPE SPARE
C5	ONE	1" 3000# CPLG W/PLUG & 310SS PIPE TW-(131) 3
C6	ONE	3/8" 3000# CPLG W/PLUG & 310SS PIPE PILOT IGNITOR
C7	ONE	1" 3000# CPLG W/PLUG & 310SS PIPE UV SCANNER
C8	ONE	1 1/2" NPT ON PREMIXER FUEL GAS
C9	ONE	1/2" 3000# CPLG W/PLUG & 310SS PIPE PSH 153
C10	ONE	1/2" 3000# CPLG W/PLUG & 310SS PIPE PSL 155
C11	ONE	1/2" 3000# CPLG W/PLUG & 310SS PIPE PT 151
C12	ONE	1 1/2" 300# RFWN (BY SENSOR SUPPLIER) 3
C13	ONE	CONNECTION INCLUDED IN CUSTOMER PIPING PT 158
C14A	ONE	1/2" 3000# CPLG W/PLUG & 310SS PIPE 3
C14B	ONE	1/2" 3000# CPLG W/PLUG & 310SS PIPE 3
C15	ONE	4" - 300# RFWN W/BLIND & 310SS PIPE CEM SAMPLE PORT
C16	ONE	4" x 3" 3000# REDUCING CPLG PREMIXER
C17	ONE	3/8" 3000# CPLG PILOT GAS

REFRACTORIES

AREA	MATERIAL	INSTALLED
R1 INLET DUCT	4"-6" C.F.B. < 304SS PINS & CLIPS (WET PACK)	SHOP
R2 COMBUSTOR	1"-8" & 4 1/2" - 6" C.F.B. < 310SS PINS & CLIPS	SHOP
R3 STACK	1"-8" & 4 1/2" - 6" C.F.B. < 310SS PINS & CLIPS	SHOP
R4 STACK FLOOR	1"-8" & 4 1/2" - 6" C.F.B. < 310SS PINS & CLIPS	SHOP
RM3 SLIP JOINT	1" - 8" C.F.N.B	FIELD
RM7 BOLTED JOINT	0.065" THK GASKET, "GORE-TEX" OR EQUAL TAPE	SHOP

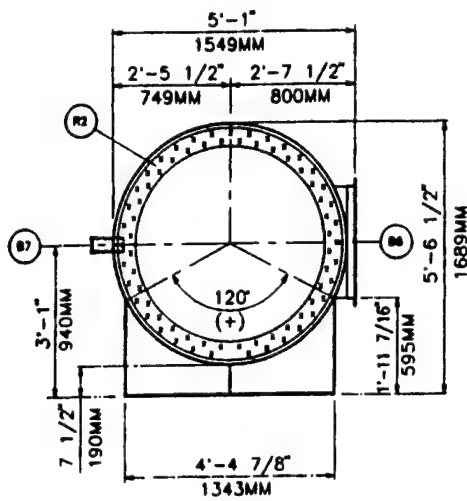
NOTES:

- SANDBLAST EXTERIOR SURFACE PER SSPC-SP6.
- PAINT EXTERIOR HTR. SURFACES W/(1) COAT (3 - 4) MILS DFT CARBOZINC 11. FINISH W/(2) COATS (4 MILS EACH) DFT "SHERMAN WILLIAMS - ALL WEATHER EPOXY"
- ALL CASING MAT'L A36 W/MINIMUM THK. AS FOLLOWS :
COMBUSTOR WALLS : 3/16" THK.
STACK : 3/16" THK.
DUCT WALLS : 3/16" THK.
- ALL LIFTING LUGS LIFT STRAIGHT UP UNLESS NOTED OTHERWISE.
- SEE BURNER DRAWINGS FOR BURNER INFORMATION.
- SKID FLOOR PLATE - 1/4" GALV. CHK'D PLATE.
- STACK & AIR INLET DUCT SHIPPED SEPARATE

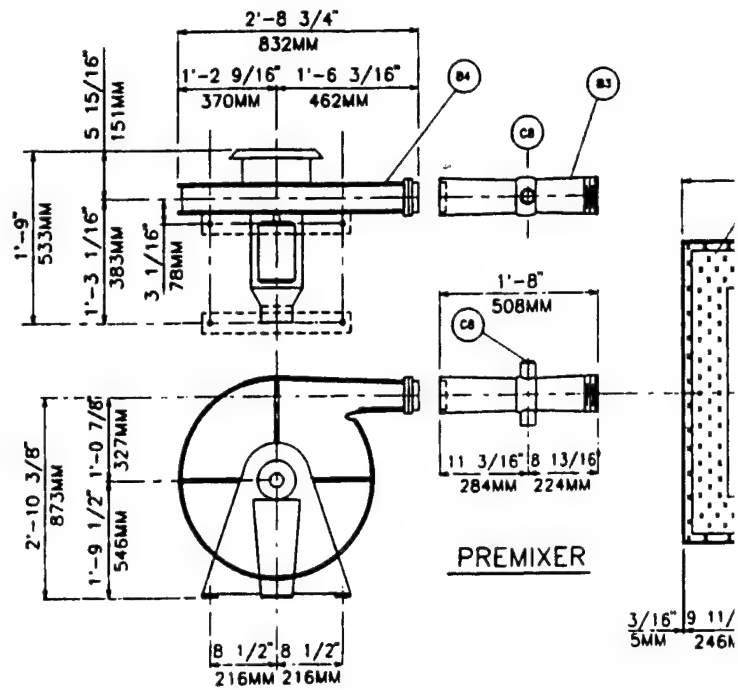
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P.O. NO.:	43366
JOB SITE:	ALPINE, AL.
END USER:	U.S. ARMY ENVIRONMENTAL CENTER
SERVICE:	AFTER BURNER SYSTEM
ARRTECH JOB NO.:	U-120

DATE	CHK'D	REVISION DESCRIPTION
1/17/96	ALP	FIELD MODIFICATIONS
10/95	JLB	ADDED FUEL TRAIN & BURNER INLET PIPING
10/95	JLB	REVISED PER CUSTOMER COMMENTS

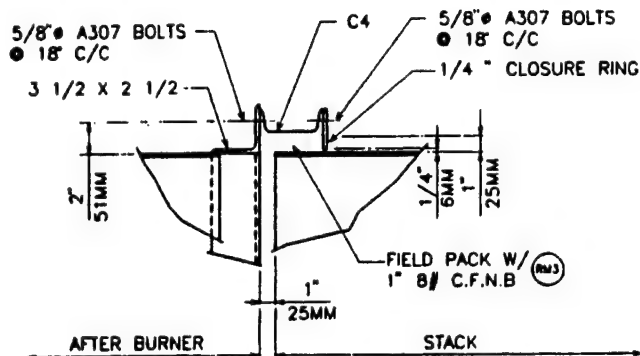
Arrtech ENVIRONMENTAL SYSTEMS, INCORPORATED		BLOOMINGTON MINNESOTA
DRAWING TITLE		
GENERAL ARRANGEMENT - PLAN & ELEV.		
DRAWN BY	OU	DATE 9/25/94
CHK'D BY	JLB	DATE 1/11/95
APPR'D BY		DATE
JOB NO.	U-120	DRAWING NO.
1A		REVISION NO.
3		



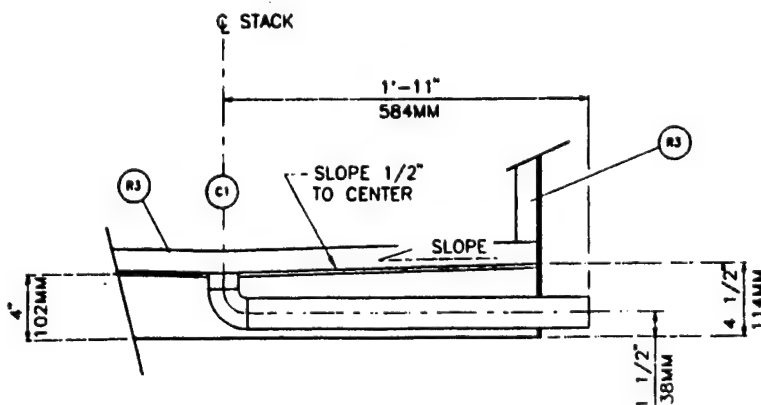
SECTION A-A



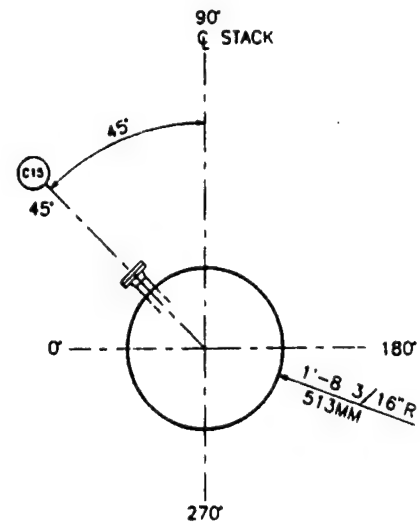
F.D. FAN



SLIP JOINT DETAIL

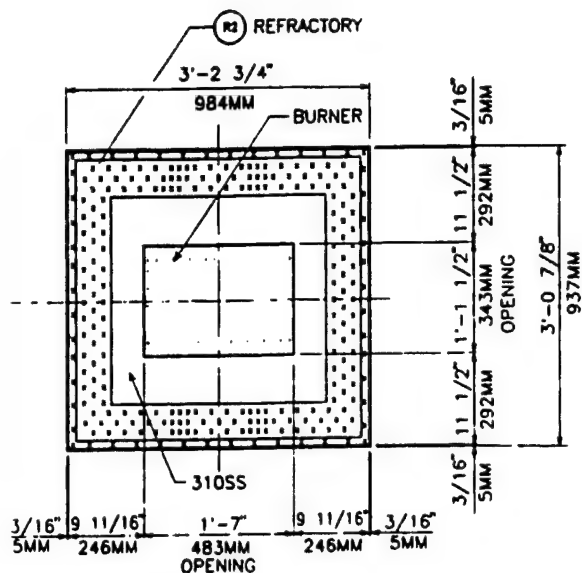


STACK FLOOR DRAIN DETAIL



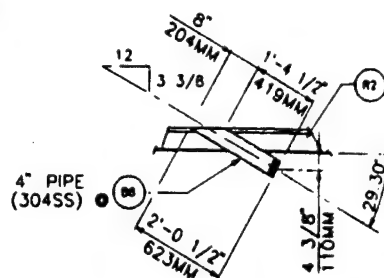
CEM SAMPLE PORT

9					
8					
7					
6					
5					
4					
3					
2	AM	8/17/98	CJP	FIELD	
1	OU	3/10/95	JLB	ADDE	
NO	BY	DATE	CHK'D		

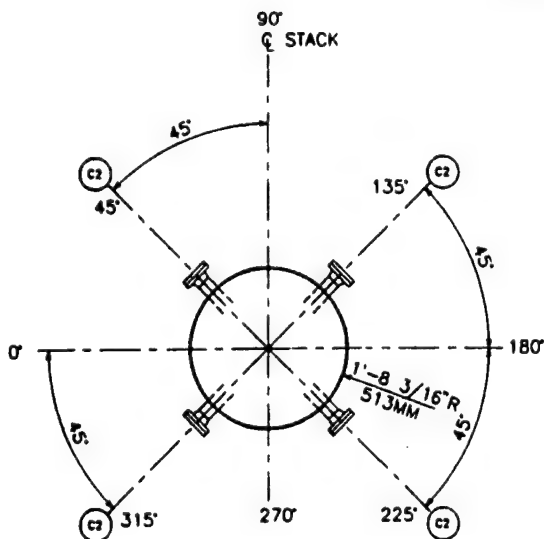


BURNER PROFILE PLATE

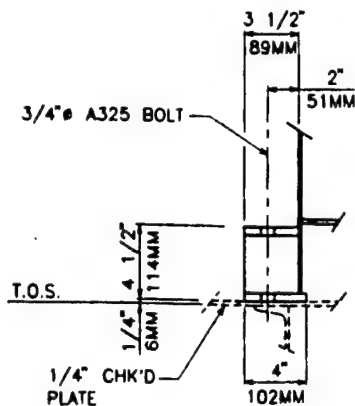
SECTION B-B



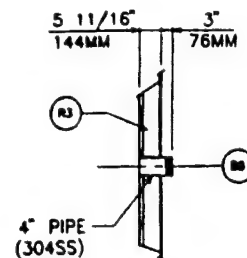
SITE PORT DETAIL
IN COMBUSTION CHAMBER



EPA SAMPLE PORTS

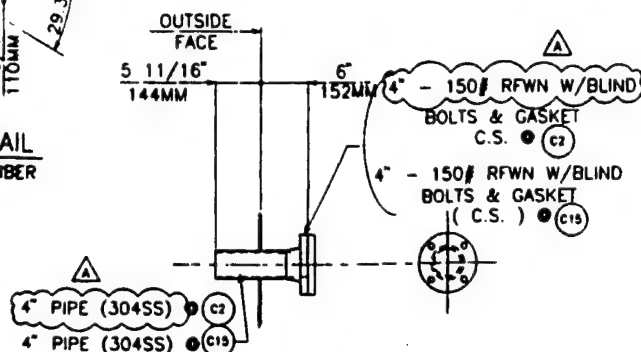


STACK BASE DETAIL

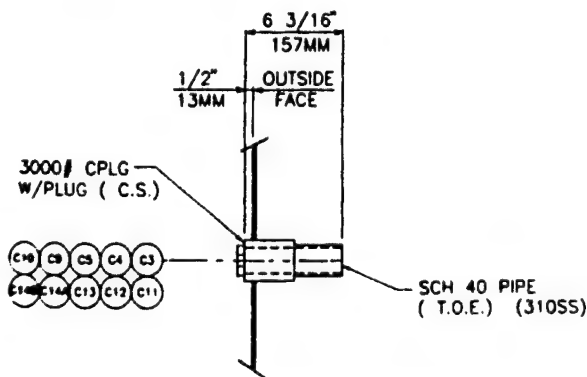


SITE PORT DETAIL

IN STACK

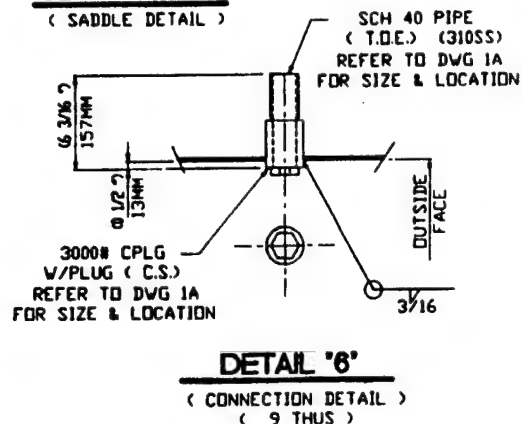
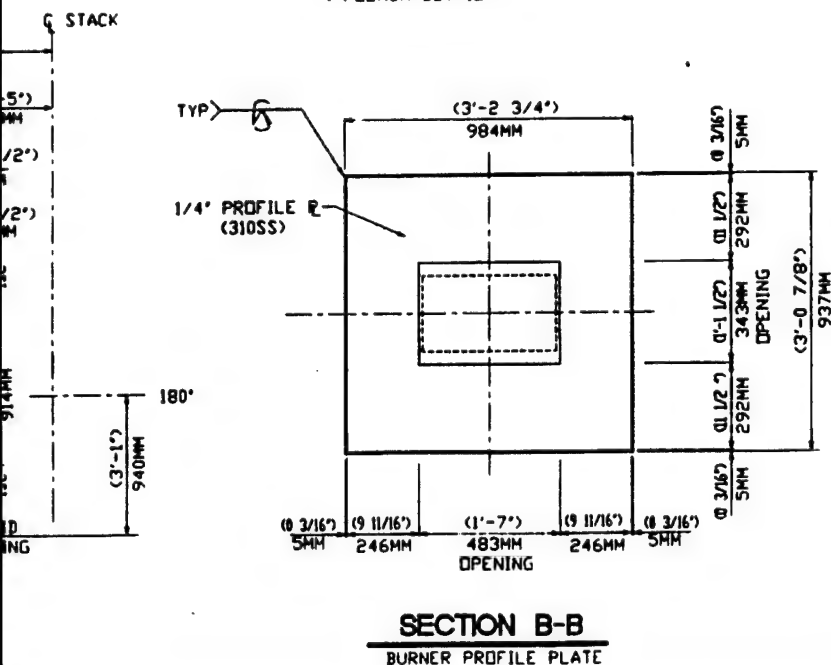
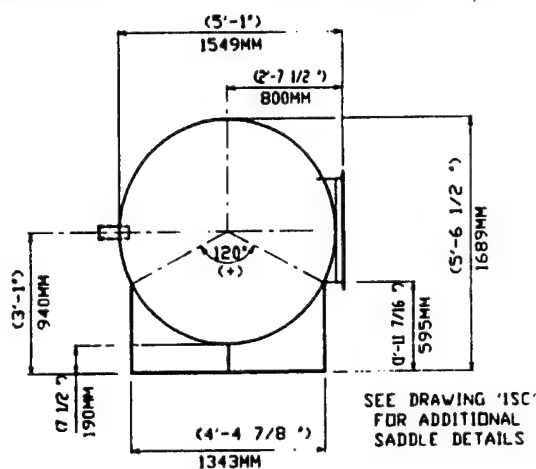
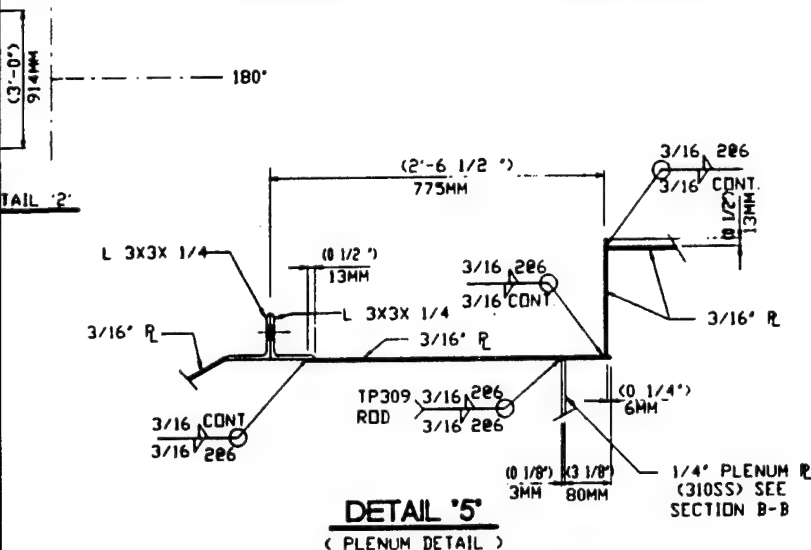
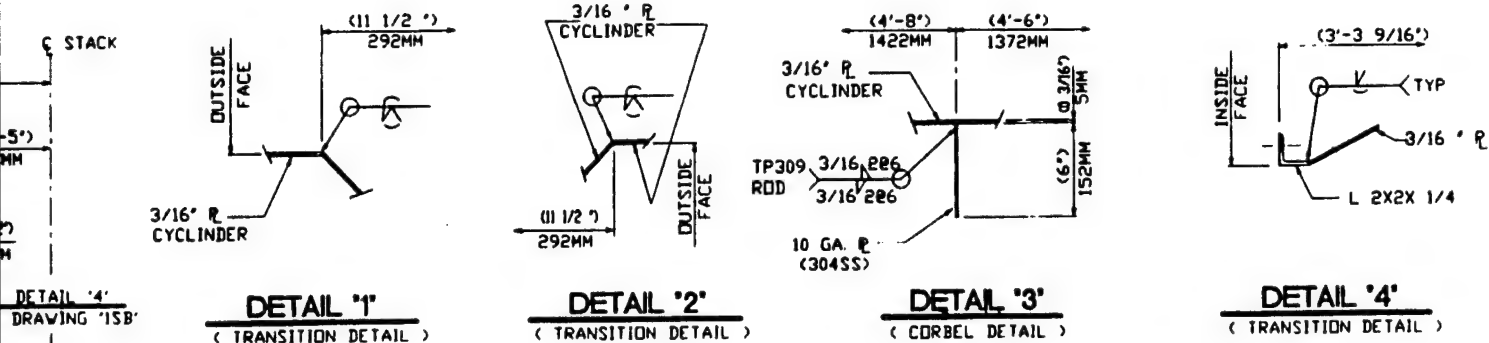


FLANGED CONNECTION DETAIL (TYPICAL)



CONNECTION DETAIL (TYPICAL)

JOB INFORMATION		Arritech	
CUSTOMER: ROY F. WESTON, INC.		8508 S. Lewis, Suite 230 Tulsa, OK 74136	
P.O. NO: 43366		ENVIRONMENTAL SYSTEMS, INCORPORATED	
JOBSITE: ALPINE, AL		DRAWING TITLE	
END USER: U.S. ARMY ENVIRONMENTAL CENTER		GENERAL ARRANGEMENTS - SECTIONS	
SERVICE: AFTER BURNER SYSTEM		DRAWN BY: OJ	DATE: 1/10/95
ARRITECH JOB NO: U-120		CHK'D BY: JLB	DATE: 1/11/95
REVISION DESCRIPTION		APPR'D BY:	DATE:
C4P FIELD MODIFICATIONS		JOB NO: U-120	
JLB ADDED NOTES TO COMM. & DETAILS & REVISED DIMENSION		DRAWING NO: 18	
CHK'D		REVISION NO: 2	



- NOTES:**
1. SANDBLAST EXTERIOR SURFACE PER SSPC-SP6 .
 2. PAINT EXTERIOR HTR. SURFACES (< 1) COAT
(3 - 4) MILS DFT CARBOZINC II.
FINISH COAT (< 2) COATS (4 MILS EACH) DFT
'SHERMAN WILLIAMS - ALL WEATHER EXPOXY'
 3. ALL C. S. MATERIAL SHALL BE A36
 4. ALL LIFTING LUGS LIFT STRAIGHT UP UNLESS NOTED OTHERWISE.
 5. SKID FLOOR PLATE - 1/4" GALV. CHK'D PLATE.

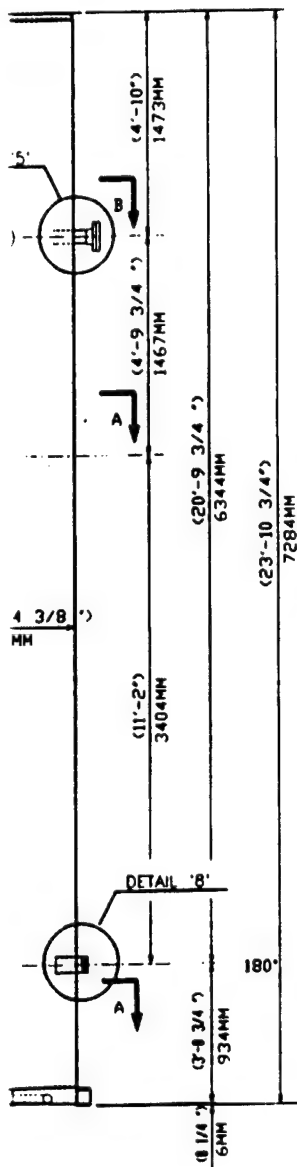
JOB INFORMATION			
9			CUSTOMER: RDT F WESTON, INC
8			P.O. NO. 43366
7			JOB SITE: ALPINE, AL
6			END USER: U.S. ARMY ENVIRONMENTAL CENTER
5			SERVICE: AFTER BURNER SYSTEM
4			ARKTECH JOB NO. 1J-120
3			
2			
1	DU	3/10/95	JB REVISED PER CUSTOMER COMMENTS
NO	BY	DATE	CHK'D
REVISION DESCRIPTION			

Artech 6508 S. Lewis, Suite 230 Tulsa, OK 74136 ENVIRONMENTAL SYSTEMS, INCORPORATED			
DRAWING TITLE: STEEL ARRANGEMENT AFTER BURNER			
DRAWN BY: DU	DATE: 12/14/94	JOB NO: 1J-120	
CHK'D BY: JLB	DATE: 1/12/95	DRAWING NO: 15A	
APPR'D BY:	DATE: / /	REVISION NO: 1	

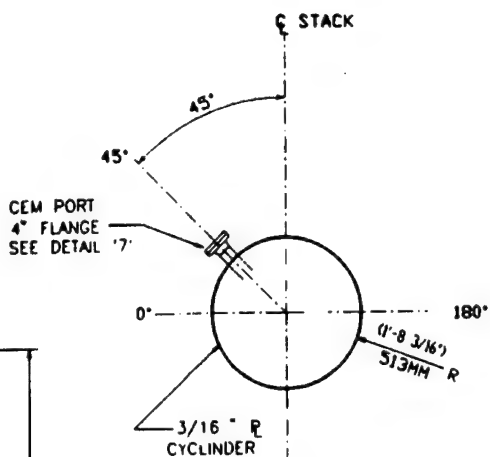
CADD DWG: 1J12015A.DWG
CADD DWG: 1J12015A.DWG

HERWISE.

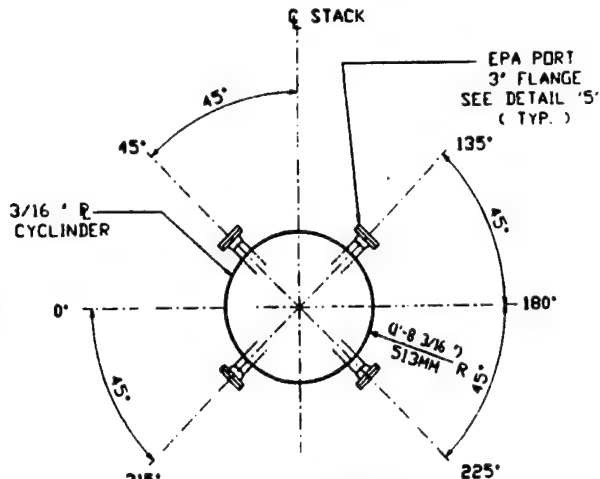
STACK



SECTION VIEW
(270°)

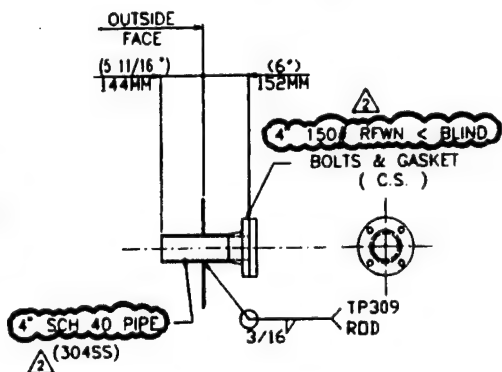


SECTION A-A
CEM SAMPLE PORT

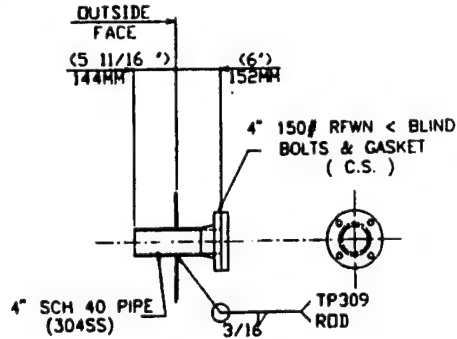


SECTION B-B
EPA SAMPLE PORTS

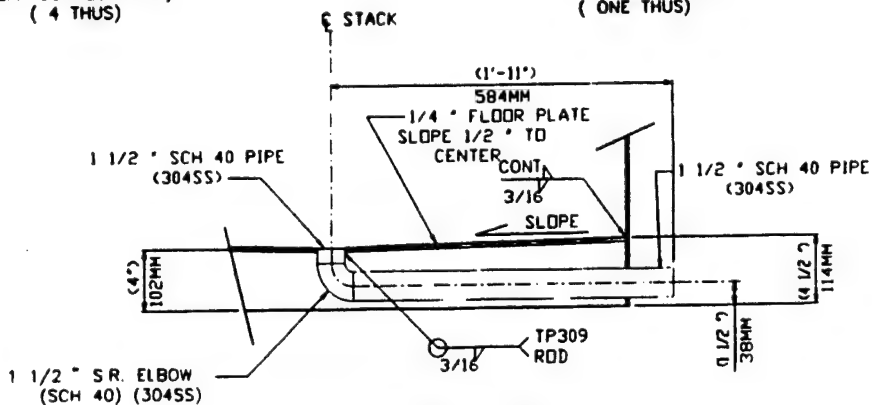
SAMPLE PORTS PLAN VIEW



DETAIL '5'
(EPA CONNECTIONS)
(4 THUS)



DETAIL '7'
(CEM CONNECTION)
(ONE THUS)

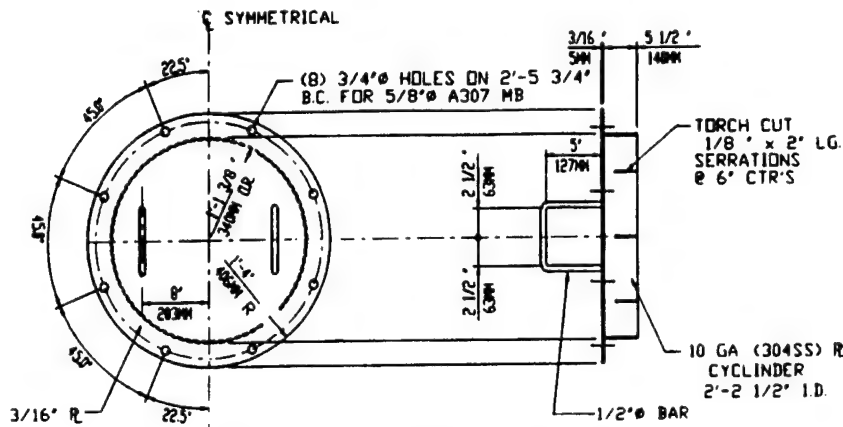


DETAIL '6'
(STACK FLOOR DRAIN)
(ONE THUS)

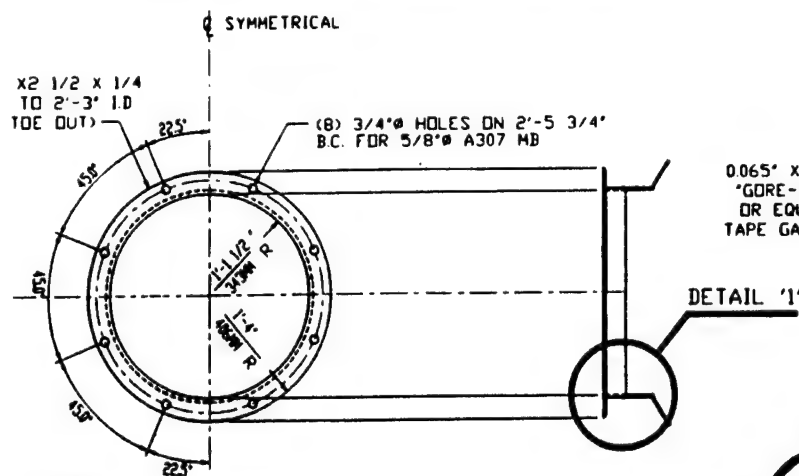
			JOB INFORMATION		<div>Arrtech</div> <div>ENVIRONMENTAL SYSTEMS, INCORPORATED</div>		8506 S. Lewis, Suite 230 Tulsa, OK 74136	
			CUSTOMER	ROY F WESTON, INC				
			P.O. NO.	43366				
			JOB SITE	ALPINE, AL				
			END USER	U.S. ARMY ENVIRONMENTAL CENTER				
			SERVICE	AFTER BURNER SYSTEM				
			ARRTECH JOB NO.	1J-120				
			FIELD MODIFICATIONS		DRAWING TITLE			
			REMOVED BOLTED ACCESS DOOR & ADDED SITE PORT		STEEL ARRANGEMENT - STACK & DETAIL			
			REVISION DESCRIPTION					

CADD DWG: W12015B DGN
CADD DWG: W1205B DWG

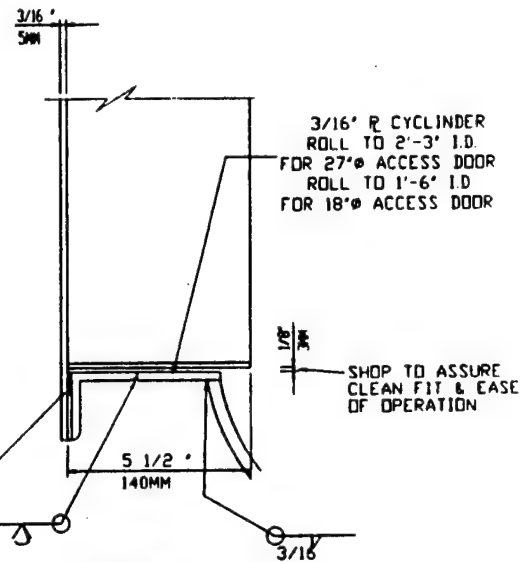
(2)



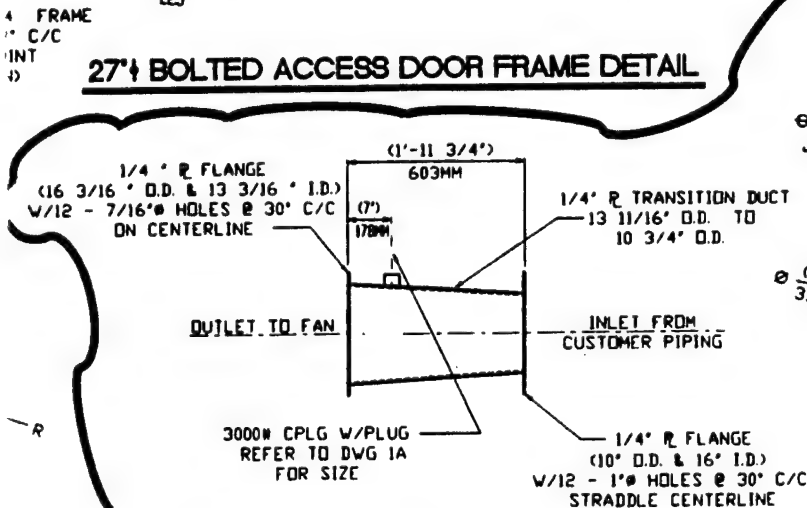
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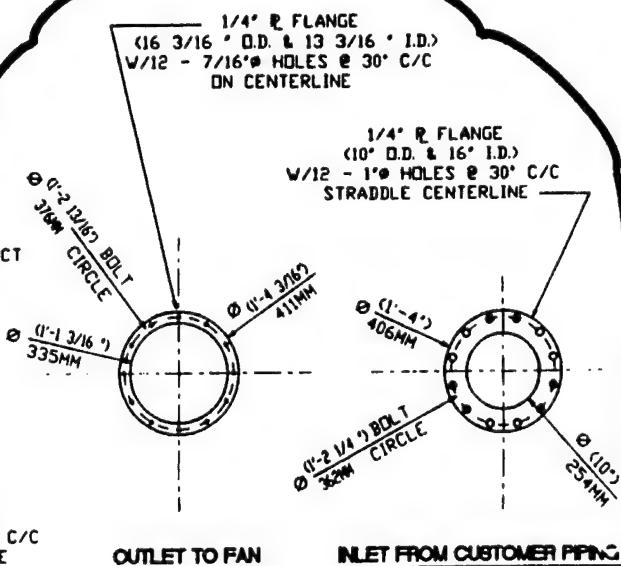
27\"/>



DETAIL 'I'
DOOR LINING



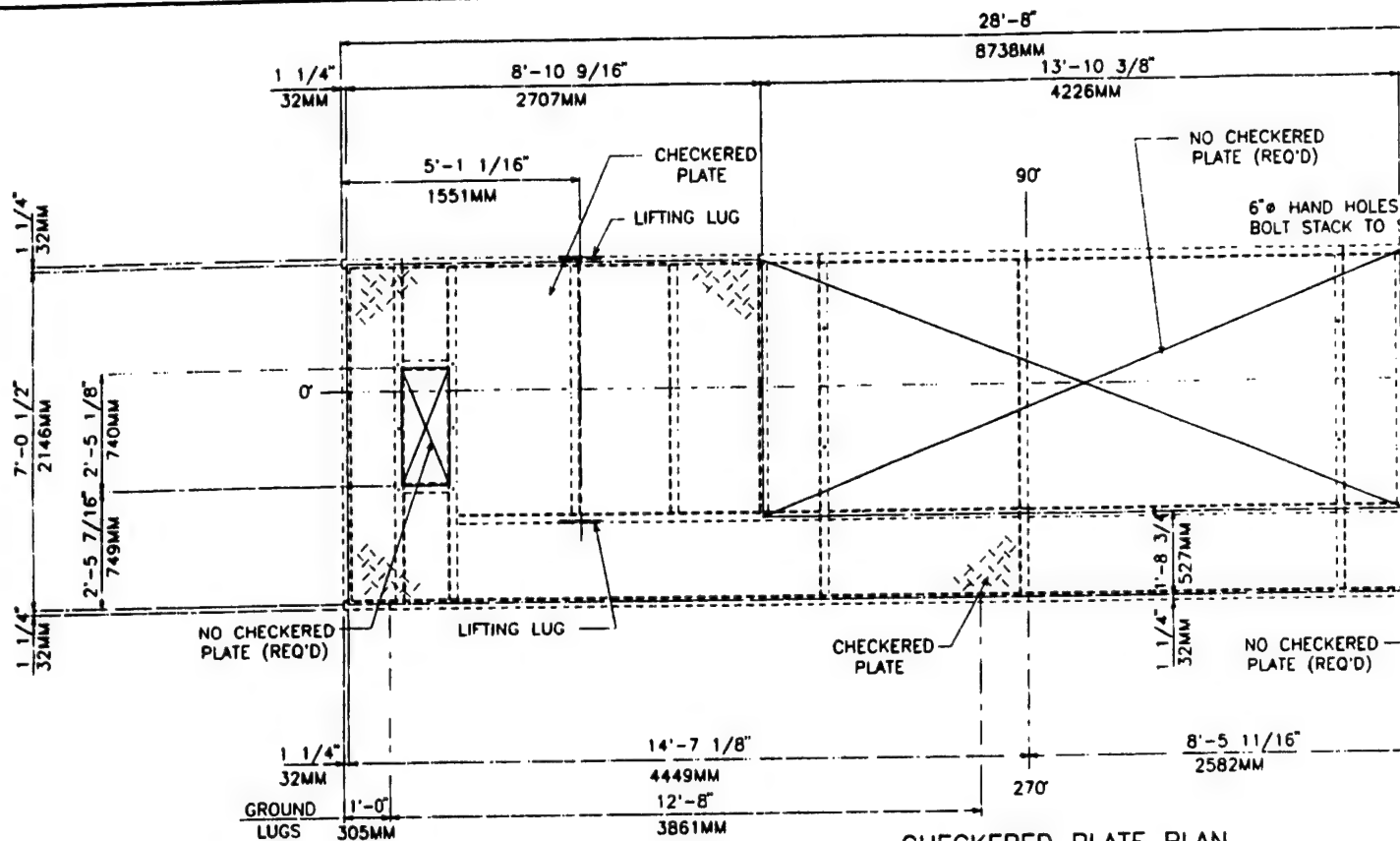
INLET TRANSITION DUCT DETAIL



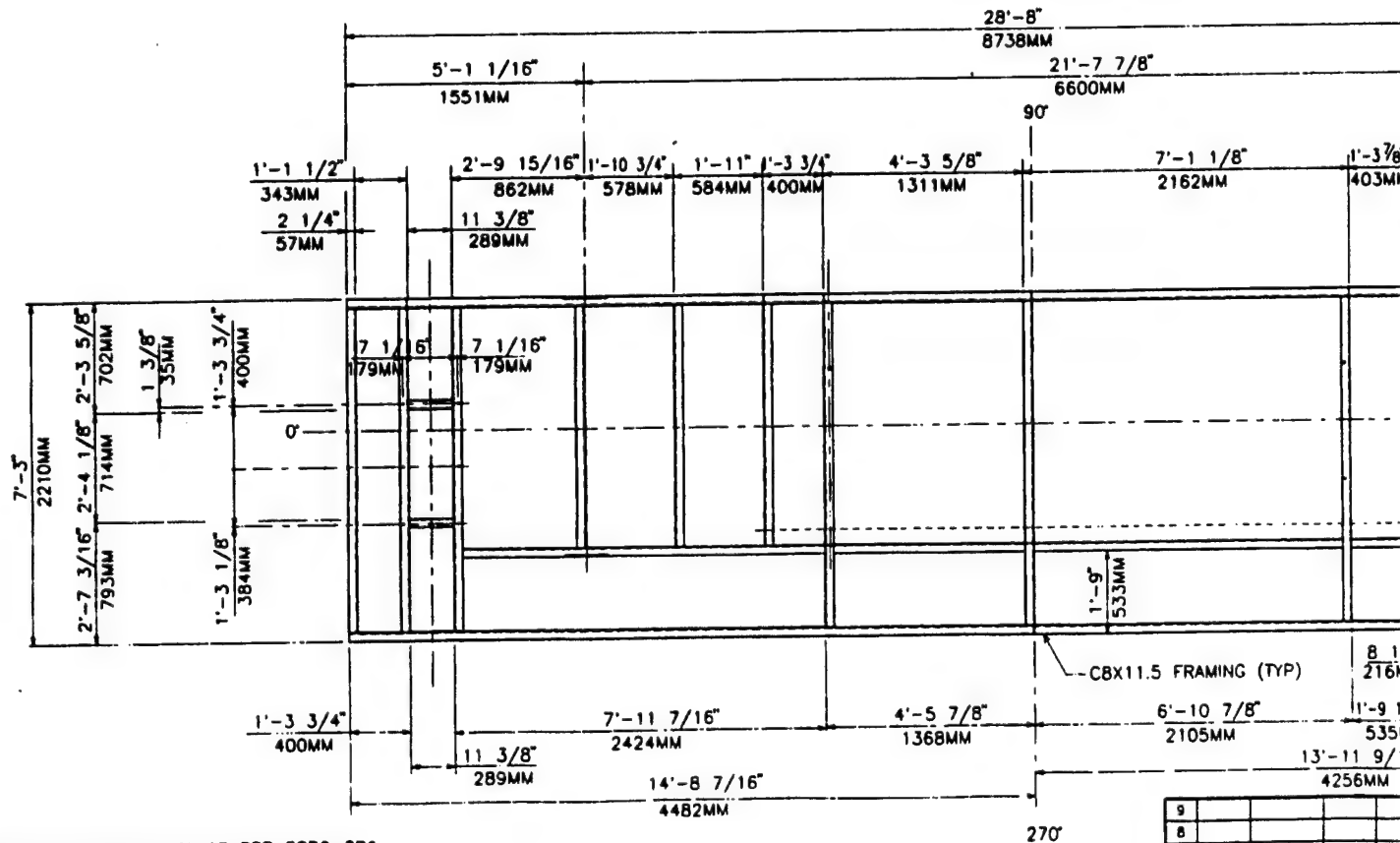
INLET TRANSITION DUCT FLANGES

		JOB INFORMATION		<div><div>Artech</div><div>ENVIRONMENTAL SYSTEMS, INCORPORATED</div><div>6506 S Lewis, Suite 230 Tulsa, OK 74136</div></div>	
		CUSTOMER	RDY F WESTON, INC		
		P.O. NO.	4376A		
		JOB SITE	ALPINE, AL		
		END USER	US ARMY ENVIRONMENTAL CENTER		
		SERVICE	AFTER BURNER SYSTEM		
		AMTECH JOB NO.	1J-120		
		REVISION DESCRIPTION		DRAWING TITLE	
				STEEL ARRANGEMENT - DETAILS	
JLB	REVISED INLET DUCT SIZE & FLANGES			DRAWN BY	DU
JLB	REMOVED 18" ACCESS DOOR & ADDED INLET DUCT			DATE	12/4/94
JLB				JOB NO.	1J-120
JLB				CHECK'D BY	JRB
JLB				DATE	1/2/95
JLB				DRAWING NO.	15C
JLB				APPRO'D BY	
JLB				DATE	/ /
JLB				REVISION NO.	2

CADD DWG: 1J120ISC.DWG
CADD DWG: 1J120SC.DWG



CHECKERED PLATE PLAN
SKID FRAMING PLAN



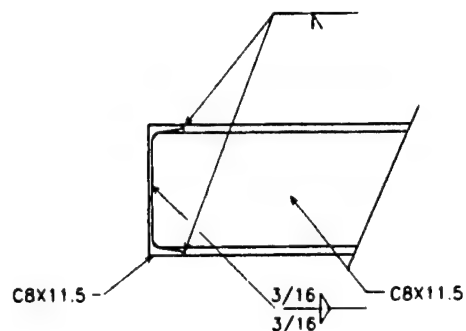
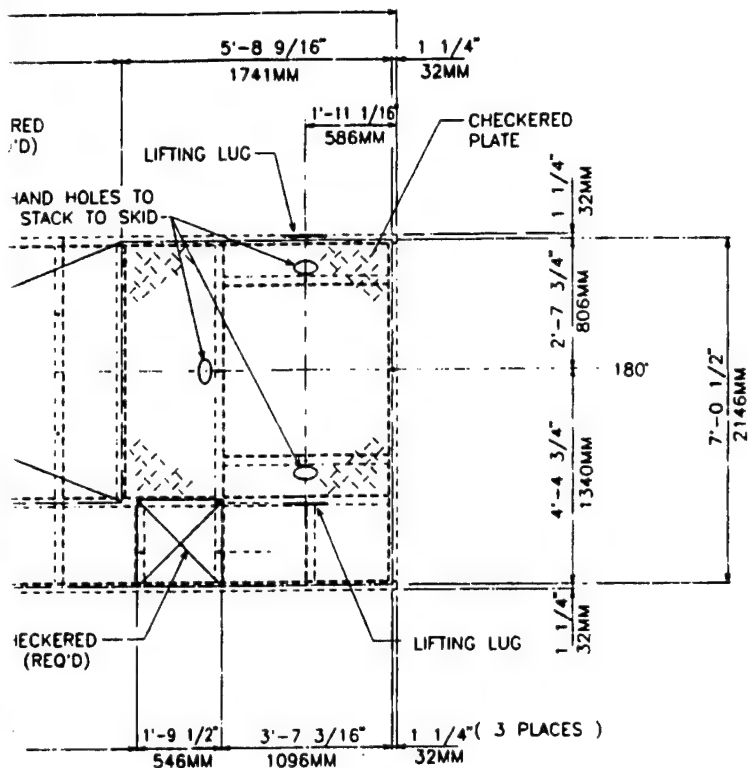
SKID STEEL PLAN
SKID FRAMING PLAN

NOTES:

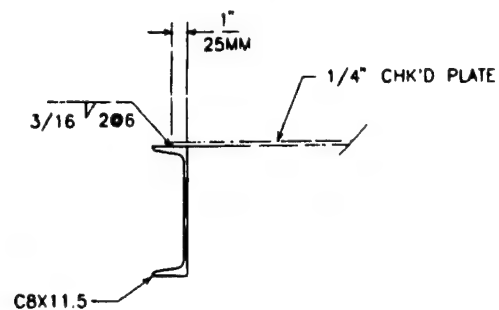
1. SANDBLAST EXTERIOR SURFACE PER SSPC-SP6 .
2. PAINT EXTERIOR HTR. SURFACES W/(1) COAT
(3 - 4) MILS DFT CARBOZINC 11.
FINISH COAT W/(2) COATS (4 MILS EACH) DFT
"SHERMAN WILLIAMS - ALL WEATHER EXPOXY".
3. ALL C. S. MATERIAL SHALL BE A36
4. ALL LIFTING LUGS LIFT STRAIGHT UP UNLESS NOTED OTHERWISE.
5. SKID FLOOR PLATE - 1/4 " GALV. CHK'D PLATE.

9					
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1	QU	3/10/95	JLB	R	
NO.	BY	DATE	CHK'D		

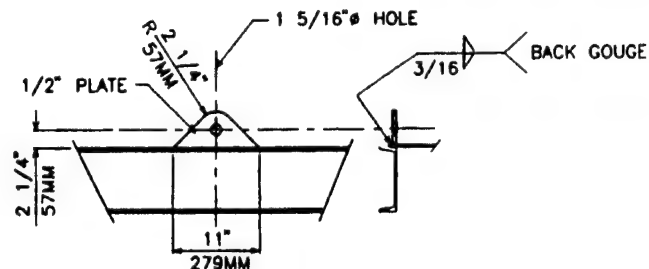
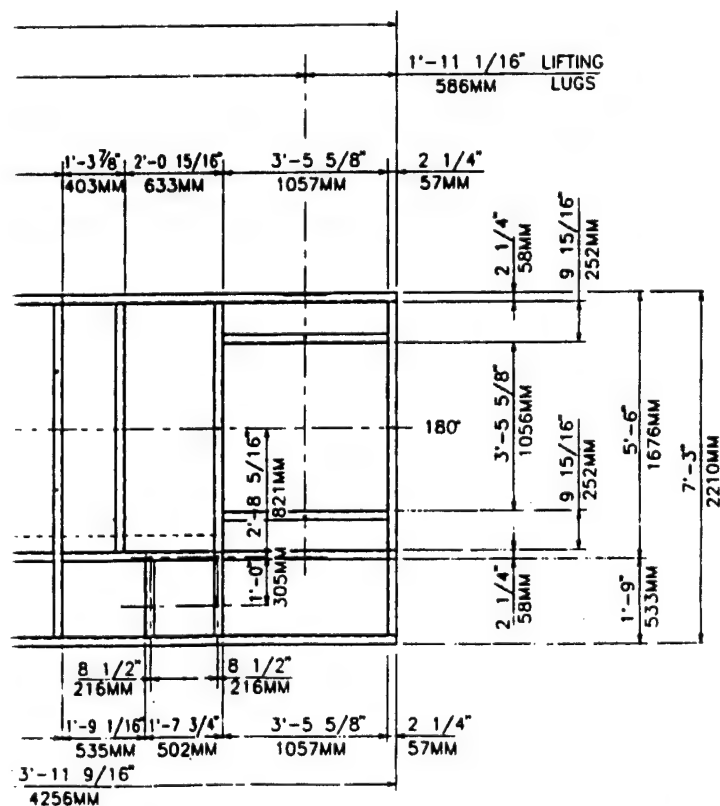
①



DETAIL '1'

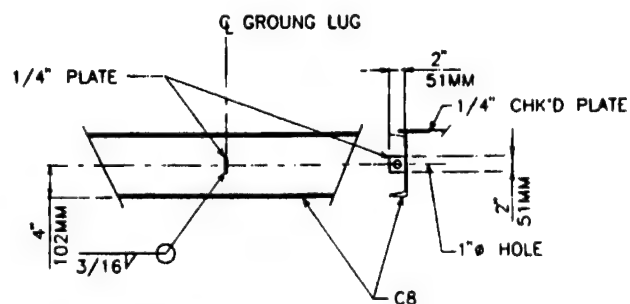


DETAIL '2'



LIFTING LUG

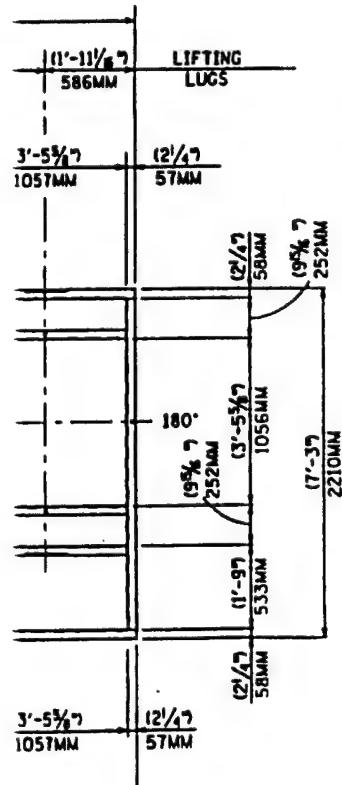
(4 THUS)



GROUND LUGS

(2 THUS)


		JOB INFORMATION		Arrlech		
		CUSTOMER: ROY F. WESTON, INC.		6506 S. Lewis, Suite 230		
		P.O. NO.: 43368		Tulsa, OK 74138		
		JOBSITE: ALPINE, AL.		ENVIRONMENTAL SYSTEMS, INCORPORATED		
		END USER: U.S. ARMY ENVIRONMENTAL CENTER		DRAWING TITLE		
		SERVICE: AFTER BURNER SYSTEM		STEEL ARRANGEMENT - SKID & DETAILS		
		ARRTECH JOB NO.: U-120		DRAWN BY: OU	DATE: 12/14/94	JOB NO: U-120
				CHK'D BY: JLB	DATE: 1/12/95	DRAWING NO: 1SD
				APPR'D BY:	DATE:	REVISION NO: 1
5	JLB	REVISED SKID & ADDED GROUND LUGS				
	CHK'D	REVISION DESCRIPTION				

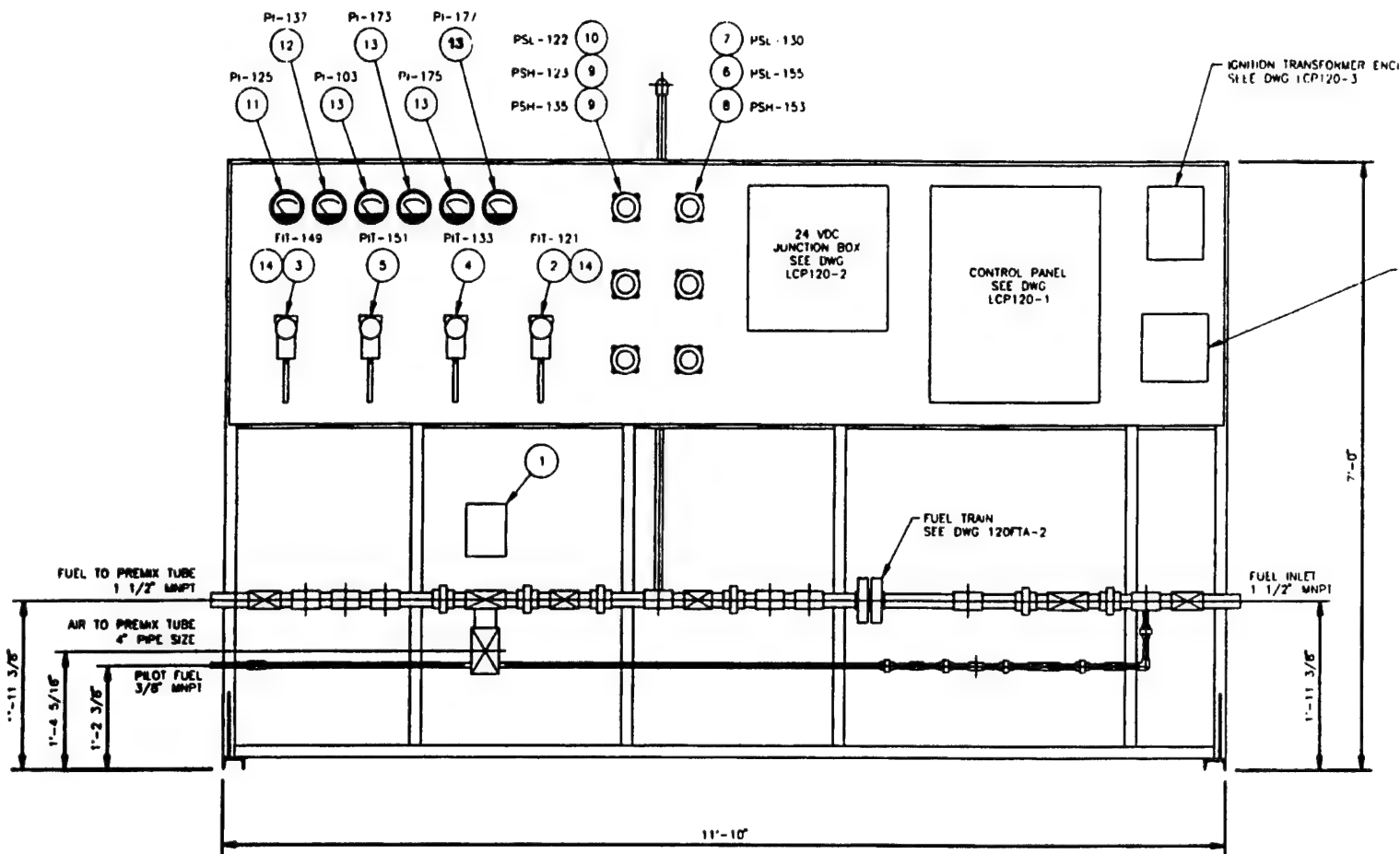


ALL LOADS IN POUNDS (P) EXCEPT OTM FOOT-POUNDS (FT-P)
 CODE: (-) INDICATES UPLIFT
 OTM = OVERTURNING MOMENT
 P = VERTICAL LOAD DUE TO OTM

ANSI A58.1, 1982
WIND VELOCITY = 90 MPH
IMPORTANCE FACTOR = 1.07
EARTHQUAKE ZONE = 4
IMPORTANCE FACTOR = 1.25

1. SANDBLAST EXTERIOR SURFACE PER SSPC-SP6 .
2. PAINT EXTERIOR HTR. SURFACES W (1) COAT
13 - 4) MILS DFT CARBOZINC 11.
FINISH COAT W (2) COATS 14 MILS EACH DFT
"SHERMAN WILLIAMS - ALL WEATHER EPOXY".
3. ALL C. S. MATERIAL SHALL BE A36
4. ALL LIFTING LUGS SHALL STRAIGHT UP UNLESS NOTED OTHERWISE.
5. SKID FLOOR PLATE - 1/4" GALV. CHK'D PLATE.

		JOB INFORMATION		 TULSA, OKLAHOMA ENVIRONMENTAL SYSTEMS, INCORPORATED BLOOMINGTON, MINNESOTA	
		CUSTOMER: ROY F. WESTON, INC.		DRAWING TITLE	
		P.O. NO.: 43344		FOUNDATION PLAN	
		JOBSITE: ALPINE, AL.		DRAWN BY DU DATE 10/13/94 JOB NO. 13-120 As Built CHK'D BY JLB DATE 1/12/95 DRAWING NO. 2A 10/21/96	
		END USER: U.S. ARMY ENVIRONMENTAL CENTER		APPR'D BY JLB DATE / / REVISION NO. 2	
JLB	REVISED WIND VELOCITY & ADDED EARTHQUAKE LOADING	SERVICE: AFTER BURNER SYSTEM			
JLB	REVISED STACK LOADING	ARRTECH JOB NO.: 13-120			
CHK'D	REVISION DESCRIPTION				



FRONT ELEVATION

GENERAL NOTES

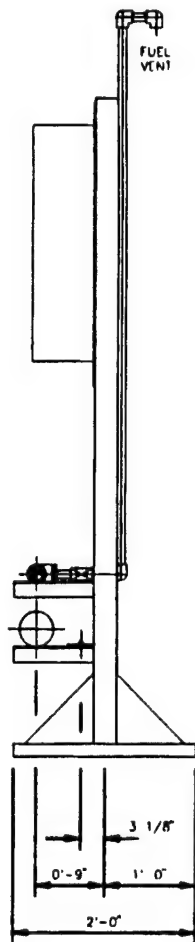
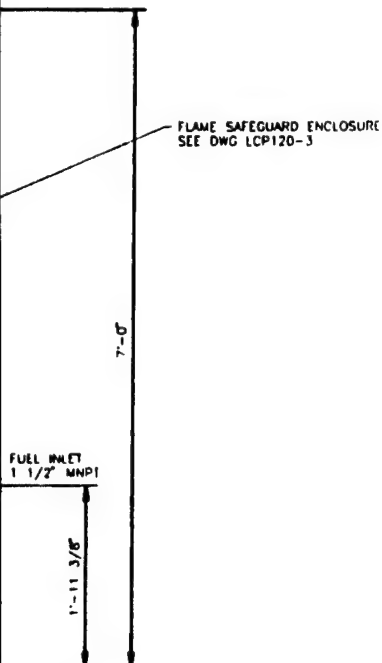
- 1 FUEL RACK FINISH: GREY ENAMEL
- 2 TUBING SHALL BE COPPER WITH BRASS FITTINGS
- 3 CONDUIT SHALL BE RIGID GALVANIZED STEEL (3/4" MINIMUM). INSTALL FLEXIBLE CONDUIT AT EACH DEVICE AS REQUIRED FOR MAINTENANCE PURPOSES (18" MINIMUM). CONDUIT FITTINGS SHALL BE CROUSE-HINDS FORM 7 OR EQUAL. INSTALL CONDUIT SEALS AS REQUIRED FOR CLASS 1, DIVISION 2, GROUP D AREA.
- 4 ITEMS 15 & 16 SHALL BE INSTALLED IN PRESSURE TAPS ON FF-121

REFERENCE DRAWINGS

NUMBER	T.T.L.
PI120	PIPING & INSTRUMENT DIAGRAM
LCP120	LOCAL CONTROL PANEL ASSEMBLY
FR120	FUEL RACK FABRICATION

11

UTION TRANSFORMER ENCLOSURE
LE DWG LCP120-3



SIDE ELEVATION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	MOTOR, FIRING RATE CONTROL, SEE ArrTech SPECIFICATION 120-5
2	1	TRANSMITTER, DP, SEE ArrTech SPECIFICATION 120-7
3	1	TRANSMITTER, DP, SEE ArrTech SPECIFICATION 120-16
4	1	TRANSMITTER, PRESSURE, SEE ArrTech SPECIFICATION 120-8
5	1	TRANSMITTER, PRESSURE, SEE ArrTech SPECIFICATION 120-11
6	1	SWITCH, PRESSURE, SEE ArrTech SPECIFICATION 120-10
7	1	SWITCH, PRESSURE, SEE ArrTech SPECIFICATION 120-12
8	1	SWITCH, PRESSURE, SEE ArrTech SPECIFICATION 120-15
9	2	SWITCH, PRESSURE, SEE ArrTech SPECIFICATION 120-17
10	1	SWITCH, PRESSURE, SEE ArrTech SPECIFICATION 120-18
11	1	GAUGE, PRESSURE, DWYER 2210 (0-10 PSI)
12	1	GAUGE, PRESSURE, DWYER 2205 (0-5 PSI)
13	4	GAUGE, PRESSURE, DWYER 2030 (0-30\"/>

3

REVISIONS						ENGINEERING RECORD			
NO	DESCRIPTION	BY	DATE	CHKD	DATE	SCALE	DATE	CHKD	DATE
0	FOR CONSTRUCTION	JW	3-6-95			1" = 1' - 0"			
1	REVISED AIR & PILOT PIPE ELEVATION	JW	4-2-95			JW	1-11-95		
2	RECORD	JW	7-4-95			ENGR			
3	FIELD MODIFICATIONS	CLP	8/1/96						

ArrTech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC

CLIENT JOB

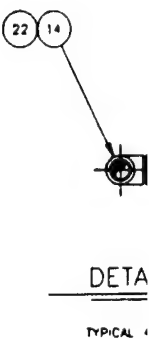
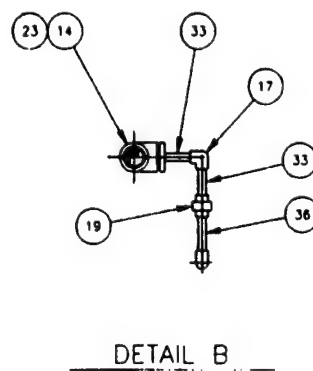
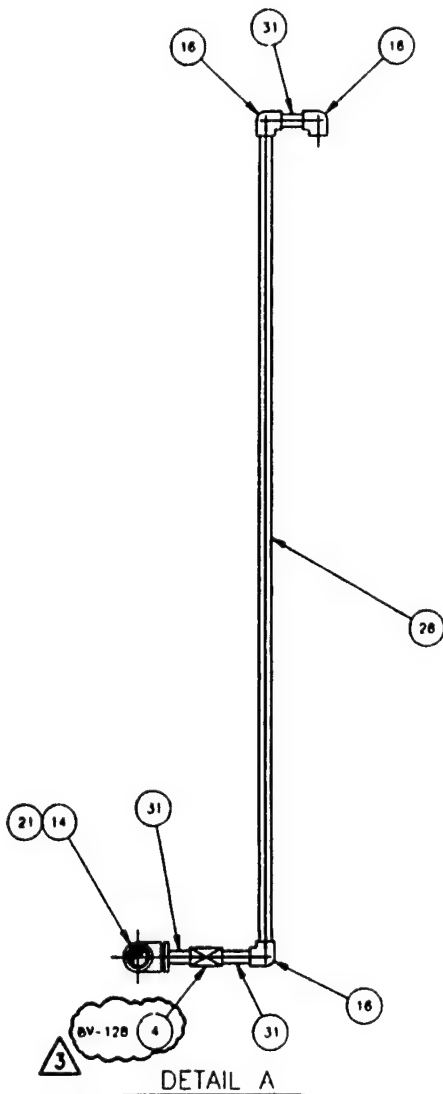
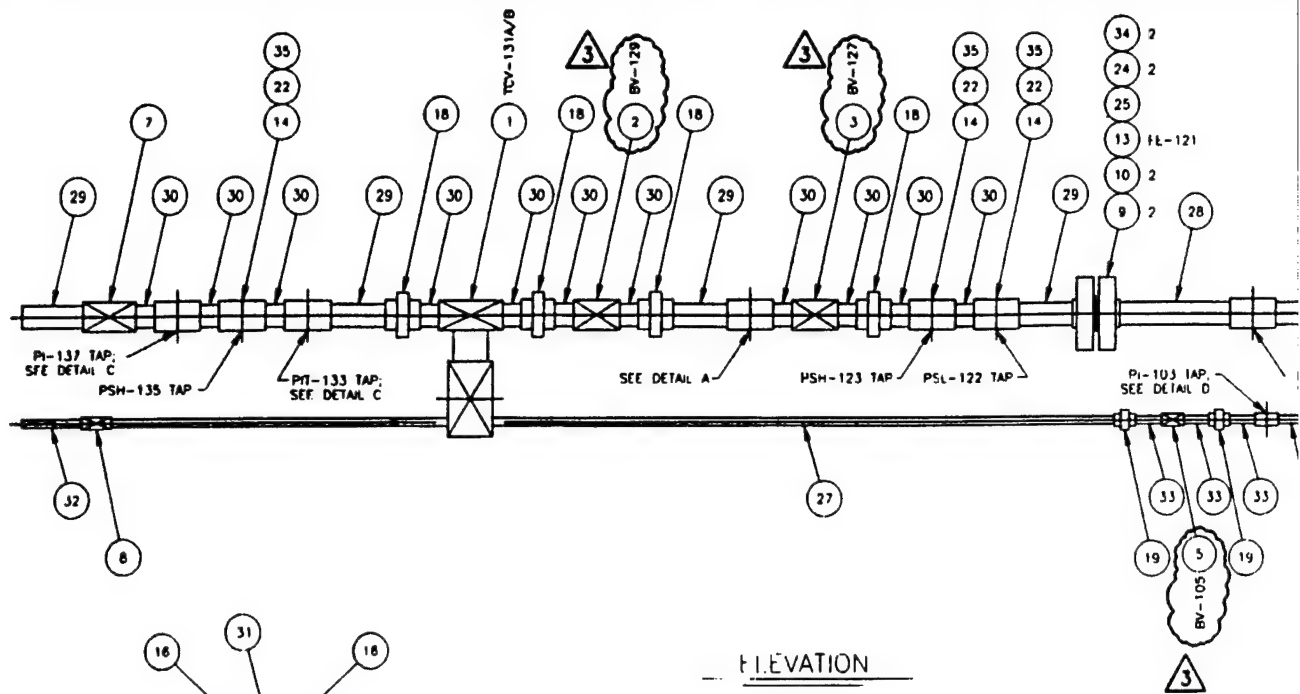
**FUEL TRAIN ASSEMBLY
AFTERBURNER**

APPROVED

DWG. #: FTA120-1

REVISION 3

2



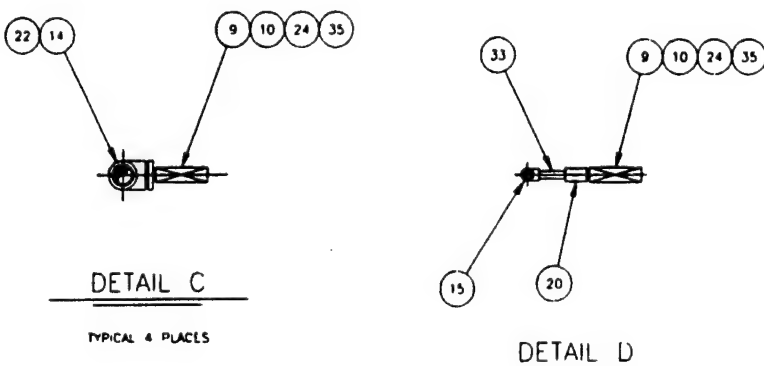
GENERAL NOTES

- 1 FINISH: ALL PIPE, NIPPLES AND PIPE FITTINGS SHALL BE PAINTED WITH GREY ENAMEL.
- 2 TWO (2) EACH OF IILMS 9, 10 & 24 ARE MOUNTED ON PREMIX AIR DUCT

REFERENCE DRAWINGS

NUMBER	FILE
PID120	PIPING & INSTRUMENT DIAGRAM

1

[illegible][illegible]

Artech

ENVIRONMENTAL SYSTEMS

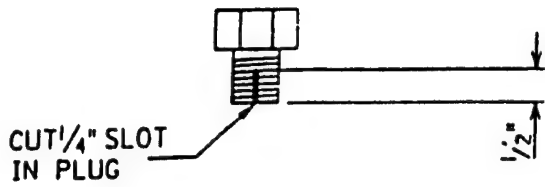
PREPARED FOR
ROY F. WESTON, INC.

CLIENT JOB

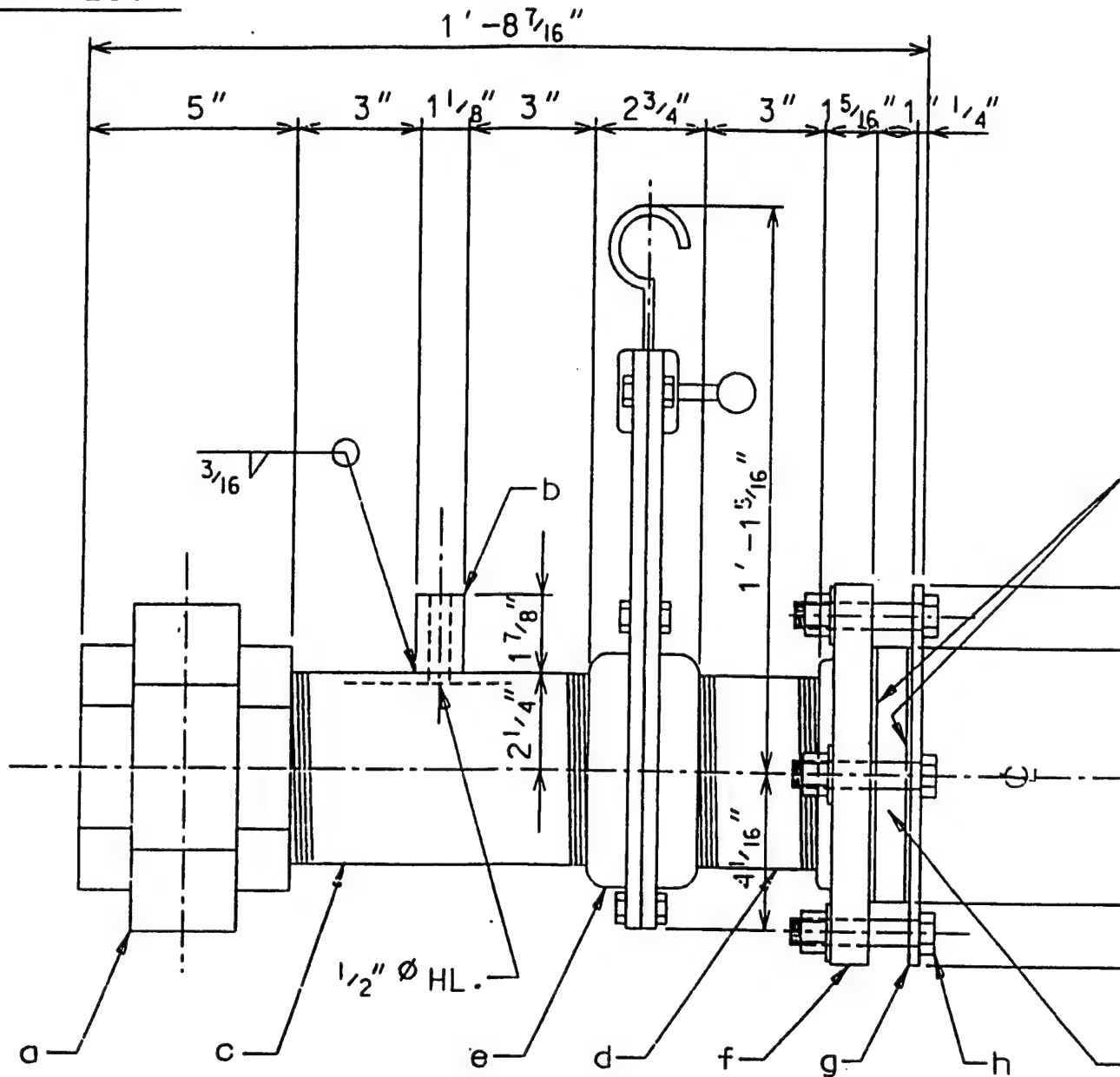
FUEL TRAIN ASSEMBLY
AFTERBURNER

APPROVED

DWG. #: FTA120-2	REVISION 3
------------------	------------



COUPLING PLUG

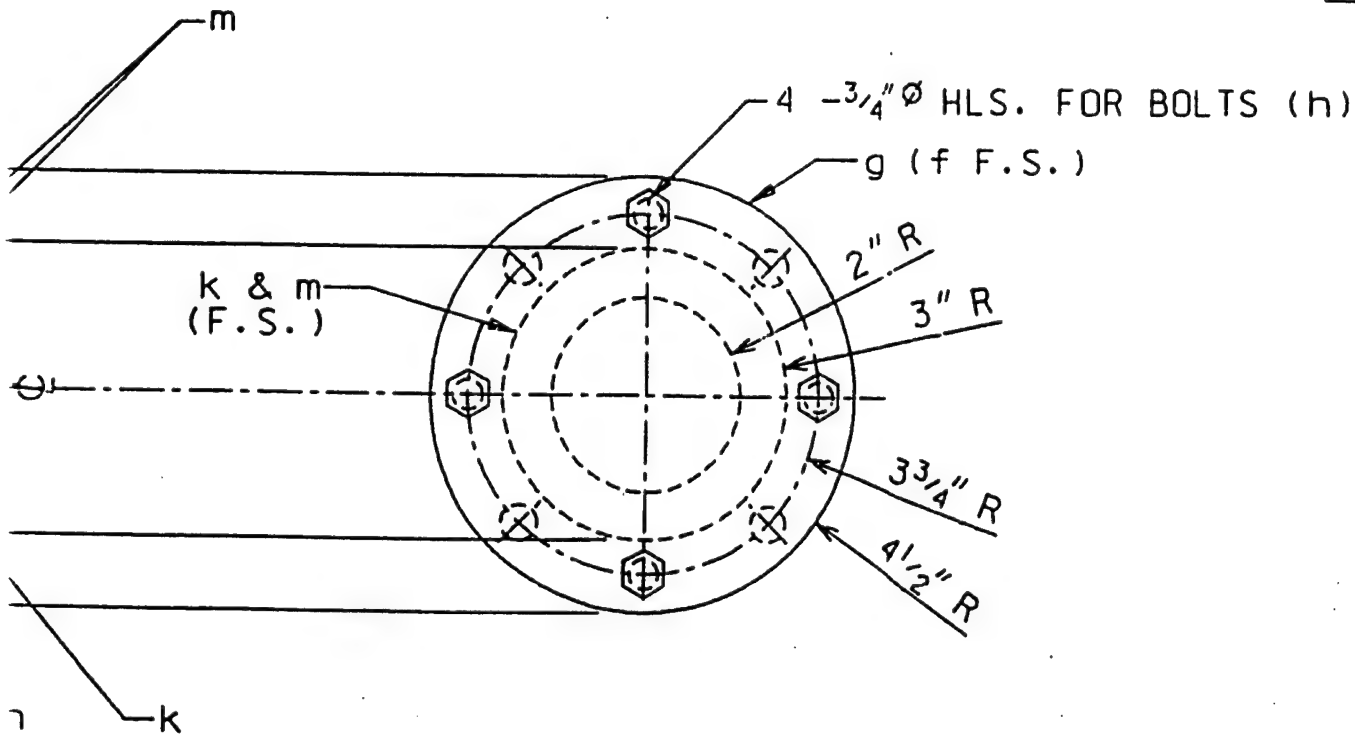


REV	DATE	BY	CKD	REVISION	REV	DATE	BY	CKD	REVISION
6					3				
5					2				
4					1				

①

BILL OF MATERIAL							
MK.	QTY.	DESCRIPTION	LENGTH		MAT'L.	C.S. WT.	S.S. WT.
			FT	IN			
a	1	4" Ø 3000# THREADED PIPE UNION			A105	30	
b	1	1/2" Ø 3000# THREADED PIPE CPLG W/ PLUG			A105	1	
c	1	4" Ø SCH40 PIPE (T.B.E.)	0	9 3/8	A106	8	
d	1	4" Ø SCH40 PIPE (T.B.E.)	0	5 1/4	A106	5	
e	1	4" MOSSER TYPE GT SLIDE VALVE					
f	1	4" Ø 150# R.F. THREADED FLANGE			A105	13	
g	1	FL 1/4" x 4" I.D. x 9" O.D.			A36	4	
h	4	5/8" Ø H.S.B. W/ NUT & WASH.	0	2 1/4	A325	1	
k	1	3/4" THK. x 6" Ø PYREX GLASS, P/N 692540					
m	2	1/8" THK. x 4" I.D. x 6" O.D.					
		COMPRESS. GASKET (KLINGER #C-4401)					

C.S. WT. 62



SIGHT PORT W/ VALVE - 4"Ø

DRAWN: OU	DATE: 1/10/95	JOB: STANDARD
CHECKED: JLB	DATE: 1/11/95	DWG NO: AES-5-53
CERTIFIED:	DATE: / /	REVISION: ① - As BUILT 2/19/95

Arrleach

6506 S. Lewis, Suite 230
Tulsa, OK 74136

ENVIRONMENTAL SYSTEMS, INCORPORATED

CAD Filename : AES-5-53.DGN

THERMAL OXIDIZER EQUIPMENT (CO

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRIPTION</u>
ES120-1	3	8/1/96	ELECTRICAL SCHEMATIC
ES120-2	3	8/1/96	ELECTRICAL SCHEMATIC
ES120-3	3	8/1/96	ELECTRICAL SCHEMATIC
ES120-4	3	8/1/96	ELECTRICAL SCHEMATIC
ES120-5	3	8/1/96	ELECTRICAL SCHEMATIC
LCP120-1	2	8/1/96	LOCAL CONTROL PANEL
LCP120-2	3	8/1/96	LOCAL CONTROL PANEL
LCP120-3	2	8/1/96	LOCAL CONTROL PANEL
IC120-1	3	8/1/96	INTERCONNECTION DIA
IC120-2	3	8/1/96	INTERCONNECTION DIA
IC120-3	3	8/1/96	INTERCONNECTION DIA
PID120	4	8/1/96	PROCESS & INSTRUMENT
RCP120-1	3	8/1/96	REMOTE CONTROL PANEL
RCP120-2	3	8/1/96	REMOTE CONTROL PANEL

①

THERMAL OXIDIZER EQUIPMENT

(continued)

EQUIPMENT (CONTINUED)

DRAWING DESCRIPTION

ELECTRICAL SCHEMATIC - AFTERBURNER
ELECTRICAL SCHEMATIC - AFTERBURNER
ELECTRICAL SCHEMATIC - AFTERBURNER
ELECTRICAL SCHEMATIC - AFTERBURNER
ELECTRICAL SCHEMATIC - AFTERBURNER

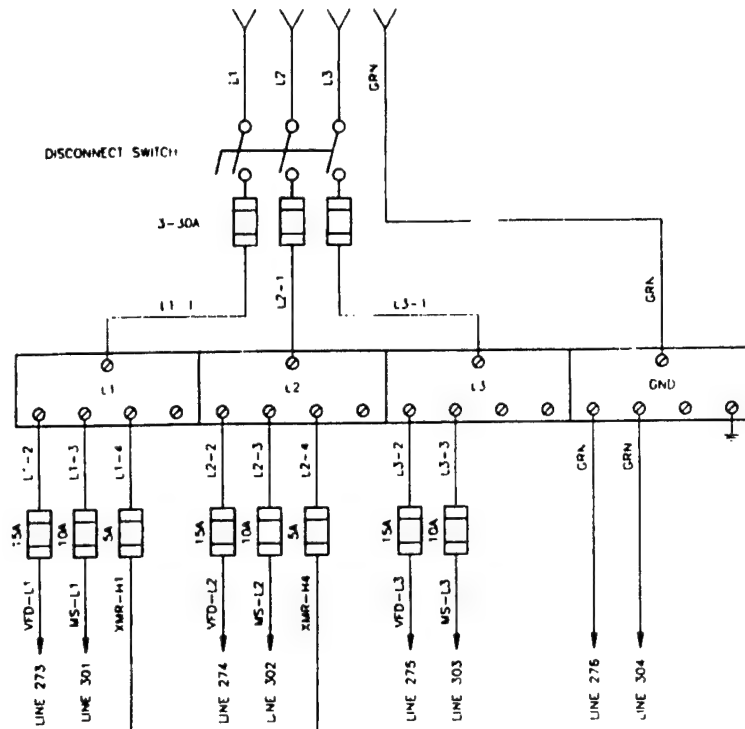
LOCAL CONTROL PANEL ASSEMBLY - AFTERBURNER
LOCAL CONTROL PANEL ASSEMBLY - AFTERBURNER
LOCAL CONTROL PANEL ASSEMBLY - AFTERBURNER
INTERCONNECTION DIAGRAM - AFTERBURNER
INTERCONNECTION DIAGRAM - AFTERBURNER
INTERCONNECTION DIAGRAM - AFTERBURNER
PROCESS & INSTRUMENTATION DIAGRAM - AFTERBURNER

REMOTE CONTROL PANEL ASSEMBLY - AFTERBURNER
REMOTE CONTROL PANEL ASSEMBLY - AFTERBURNER

480V, 3 PH, 60 HZ POWER
BY OTHERS

DISCONNECT SWITCH

3-30A



480/230V
TRANSFORMER - 2 KVA

120V

COOLING FAN

REMOTE LOCAL

HS-158E

OFF HAND AUTO

HS-158E

LOCAL

REMOTE

CR-29

CR-28

OL 169

POWER

REMOTE 33, 55 117

LOCAL 32, 54 116

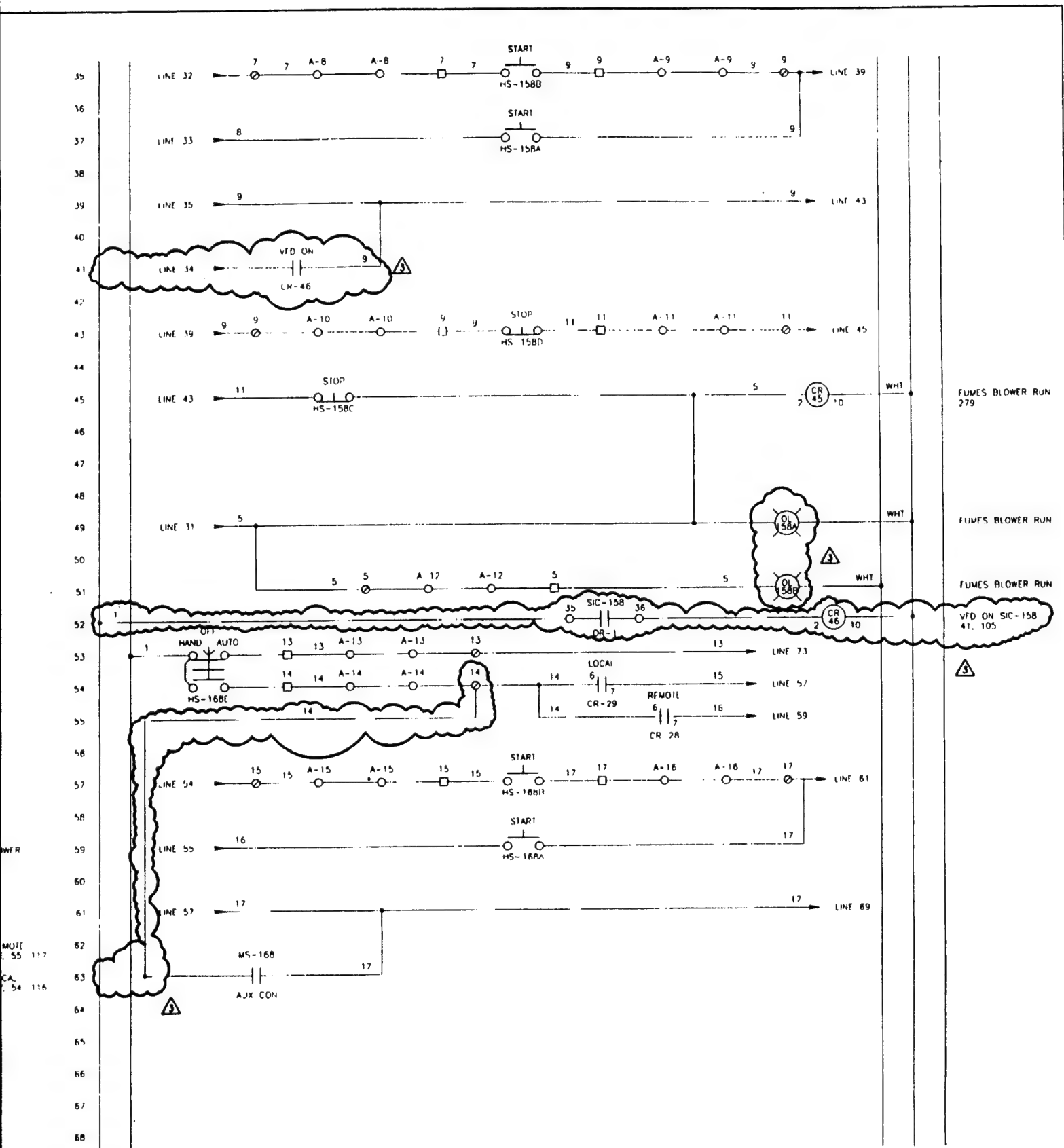
GENERAL NOTES

1 SEE LEGEND ON DWG ES120-5

PLOTTED 08/02/96
PLT. SC. 1=1

REFERENCE DRAWINGS

NUMBER	TITLE
PID120	PIPING & INSTRUMENT DIAGRAM
IC120	INTERCONNECTION DIAGRAM
LCPI20	LOCAL CONTROL PANEL ASSEMBLY
RCPI20	REMOTE CONTROL PANEL ASSEMBLY
FTA120	FUEL TRAIN ASSEMBLY



CONTINUED ON DWG ES120-2

REV	NO	DESCRIPTION	BY	DATE	CHK	DATE	ENGINEERING RECORD				APPROVED	DATE
							SCALE	NONE	DATE	DATE		
0	FOR CONSTRUCTION	JW	3-4-95				JW	9-28-94				
1	REVISED LINES 28 & 29	JW	6-28-95									
2	RECORD	JW	7-6-95									
3	FIELD MODIFICATIONS	Wp	8/1/96									

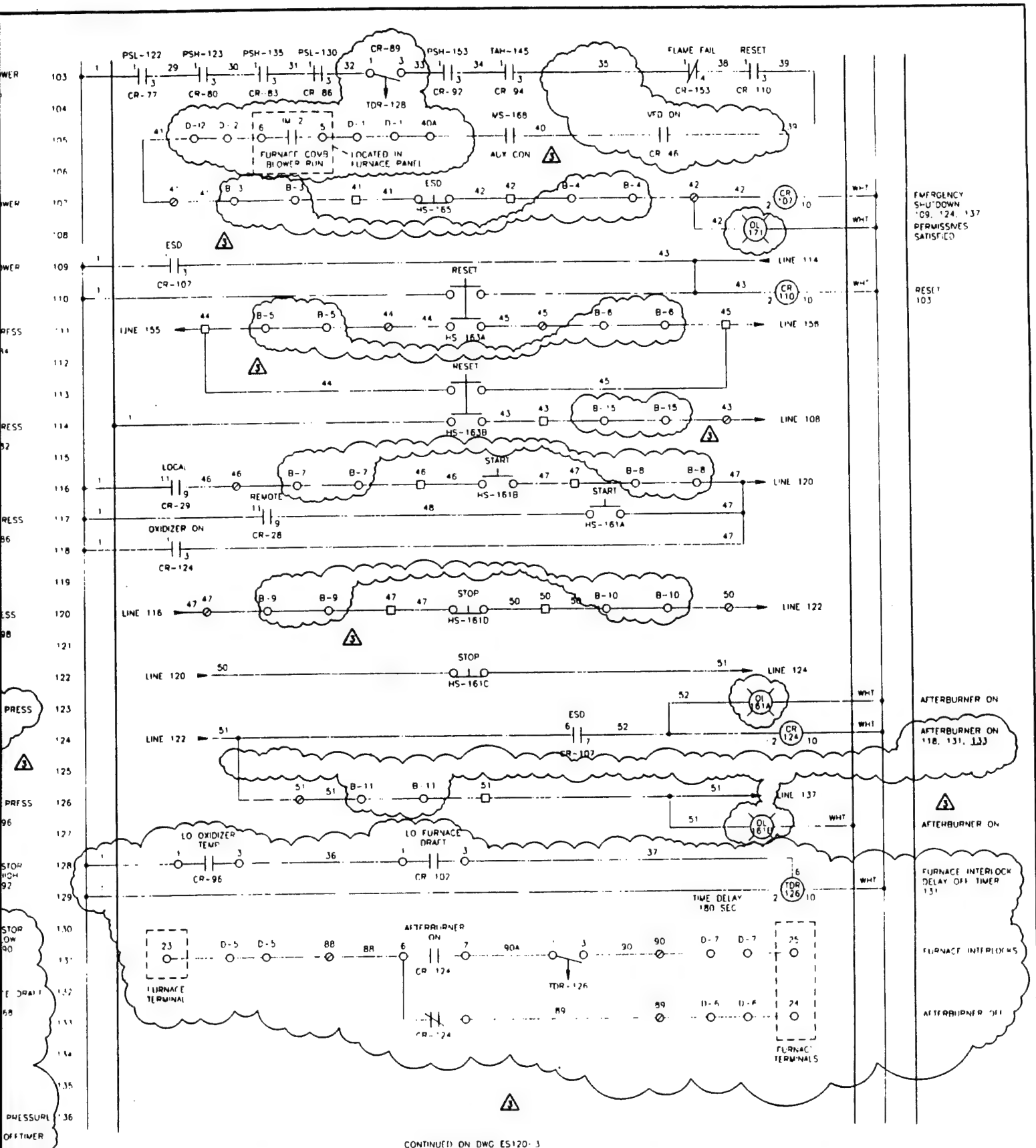
Arrtech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC.

CLIENT JOB

**ELECTRICAL SCHEMATIC
AFTERBURNER**

DWG. #: ES120-1 REVISION 3



EMERGENCY
SHUT DOWN
CR. 124, 137
PERMISSIVES
SATISFIED

RESET
103

AFTERBURNER ON
AFTERBURNER ON
118, 131, 133

AFTERBURNER ON

FURNACE INTERLOCK
DELAY OFF TIMER
131

FURNACE INTERLOCKS

AFTERBURNER OFF

CONTINUED ON DWG ES120-3

REVISIONS					ENGINEERING RECORD				
NO	DESCRIPTION	BY	DATE	CHK	DATE	SCALE	NONE	DATE	
0	FOR CONSTRUCTION	JW	3-6-95			JW	9-28-94		
1	ADDED HS-163B	JW	4-7-95			ENCR			
2	RECORD	JW	7-6-95						
3	FIELD MODIFICATIONS	WESTON	8-1-96	OP	8/1/96				

ArrTech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC.

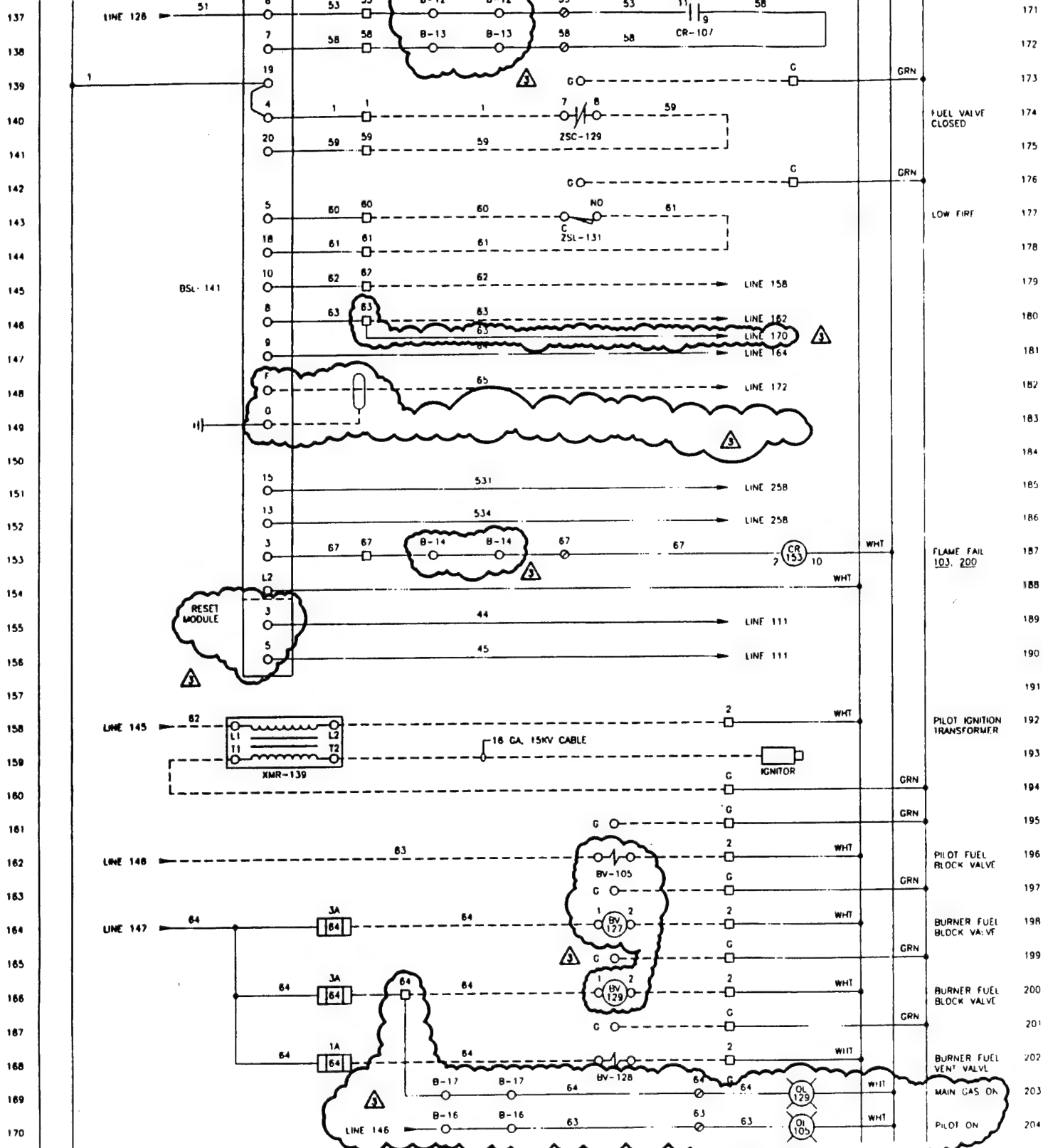
CLIENT JOB

ELECTRICAL SCHEMATIC AFTERBURNER

APPROVED

DWG. #: ES120-2

REVISION 3



GENERAL NOTES

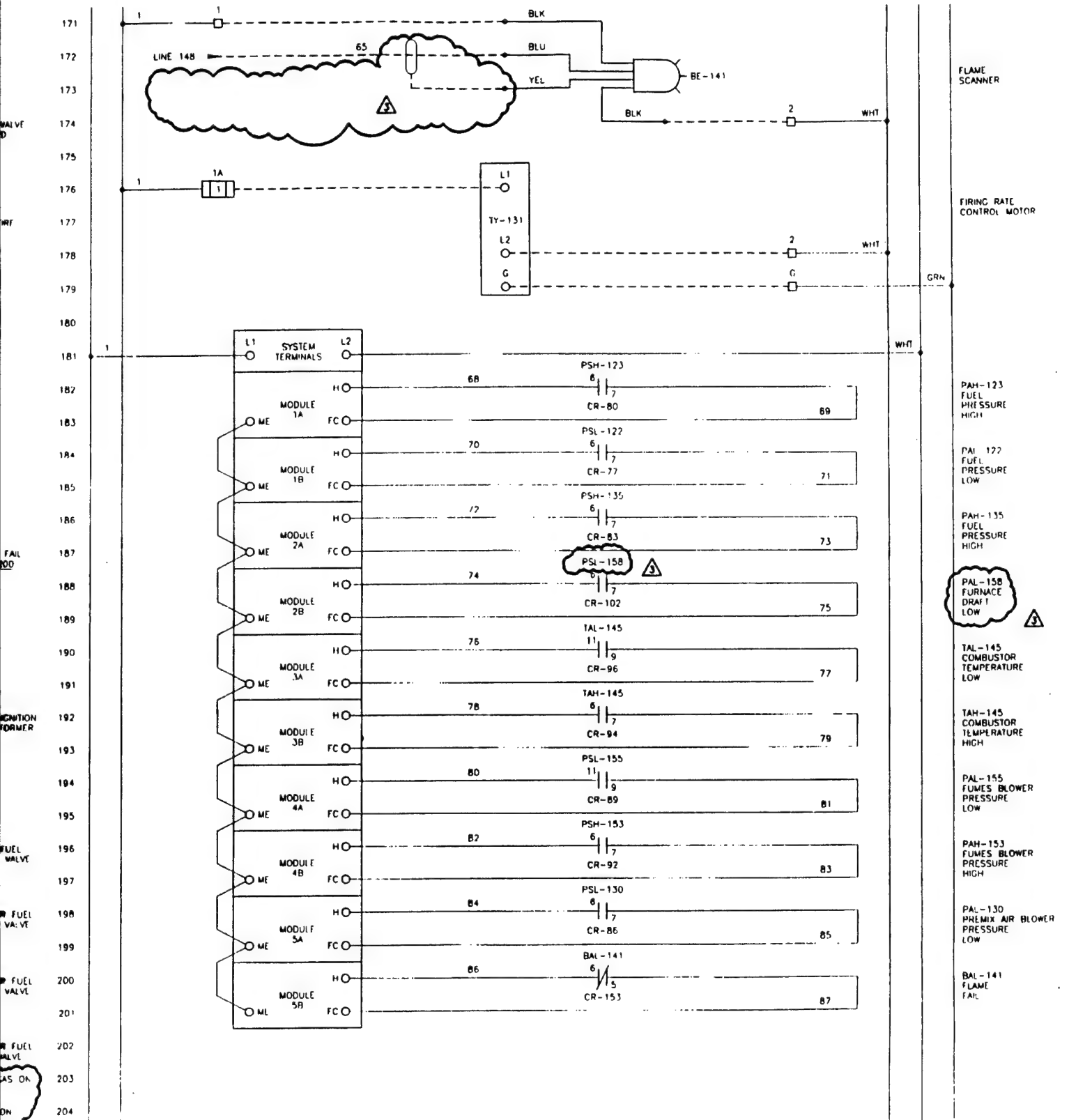
1. SEE LEGEND ON DWG ES120-5

REFERENCE DRAWINGS

FIGURE #	TITLE
PD120	PIPING & INSTRUMENT DIAGRAM
IC120	INTERCONNECT DIAGRAM
LC120	LOCAL CONTROL PANEL ASSEMBLY
RC120	REMOTE CONTROL PANEL ASSEMBLY
FT120	FUEL TRAIN ASSEMBLY


PLOTTED 08/02/96
P.L.T. SC. 1-1

1



CONTINUED ON DWG. ES120-4

REVISIONS						ENGINEERING RECORD			
NO.	DESCRIPTION	BY	DATE	CHKD.	DATE	SCALE	DATE	DATE	DATE
0	FOR CONSTRUCTION	JW	1-4-95			JW	12-31-94		
1	REVISED LINES 125 & 158	JW	4-8-95						
2	RECORD	JW	7-4-95						
3	FIELD MODIFICATIONS	SP	8/1/96						



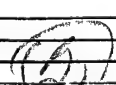
Arttech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC.

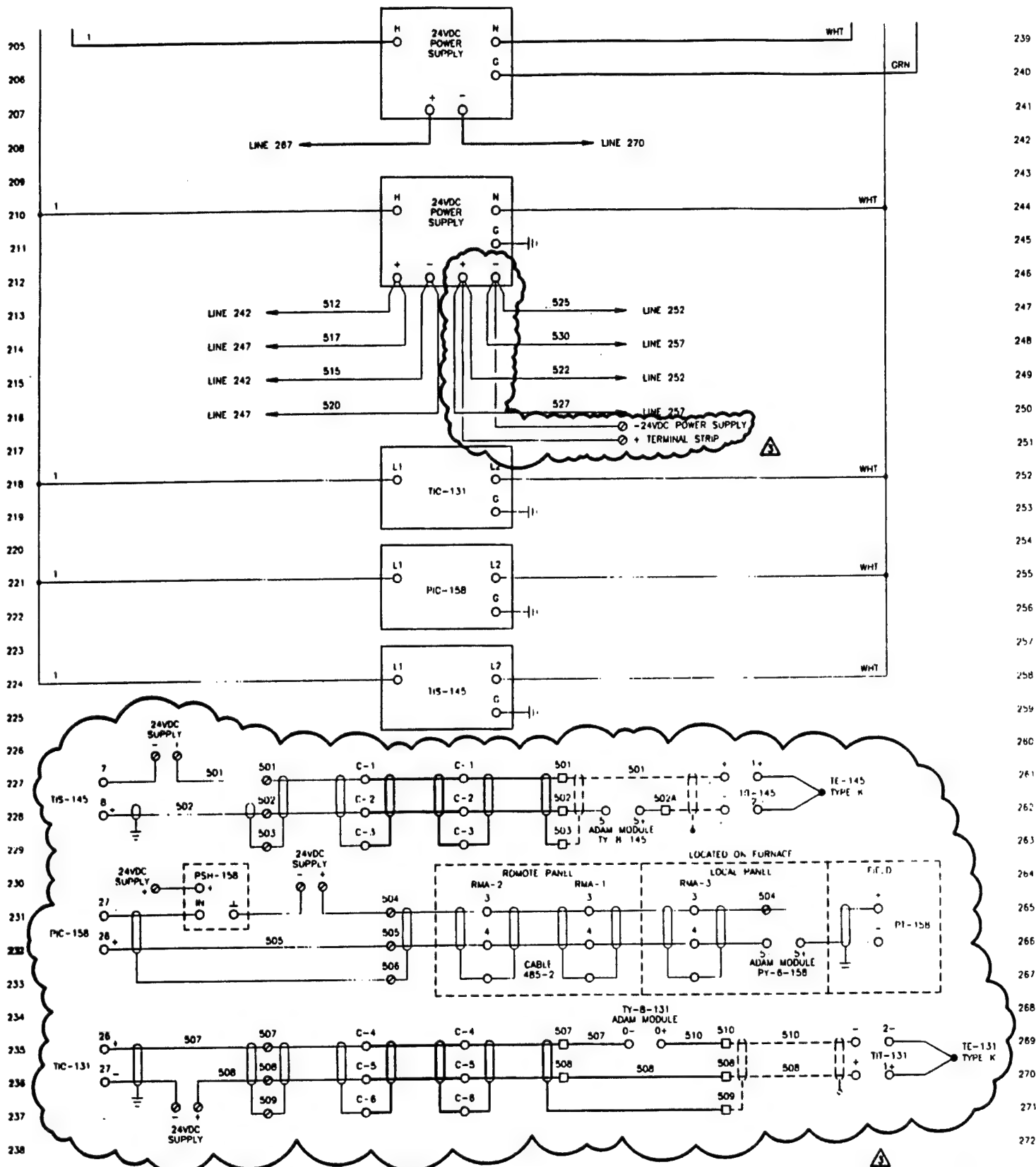
CLIENT JOB

ELECTRICAL SCHEMATIC AFTERBURNER

APPROVED



DWG. #: ES120-3 REVISION 3

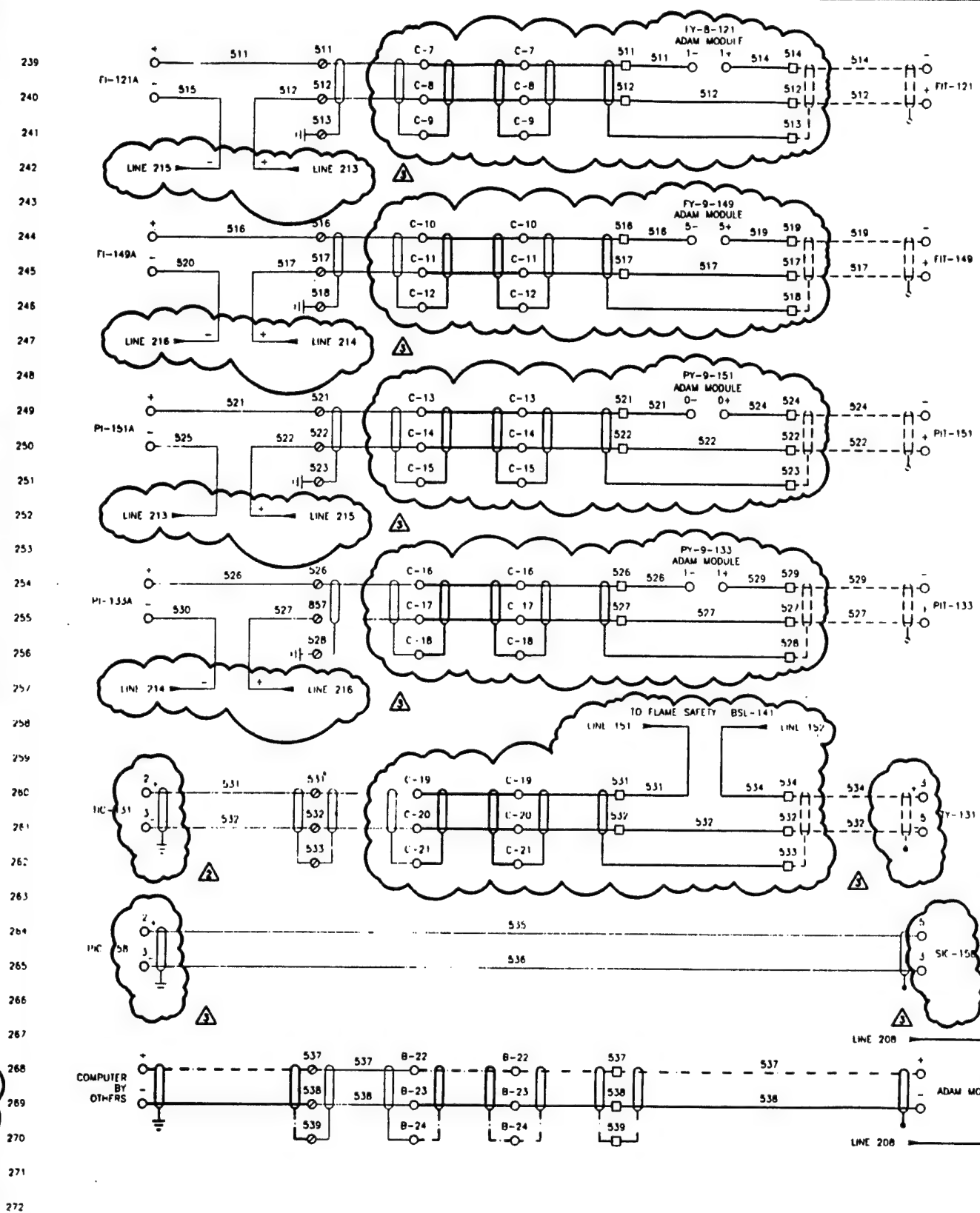


GENERAL NOTES

1 SEE LEGEND ON DWG ES120-5

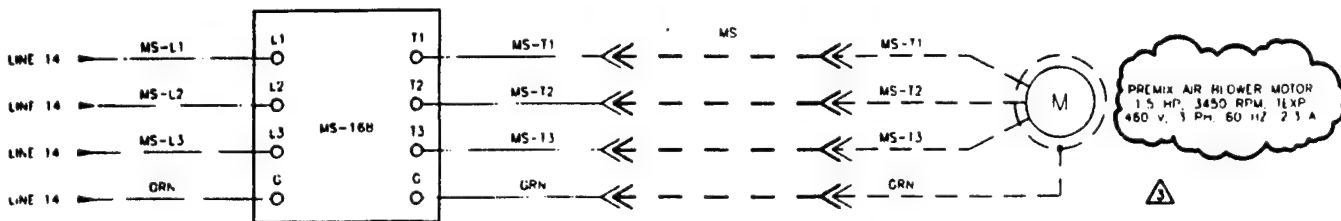
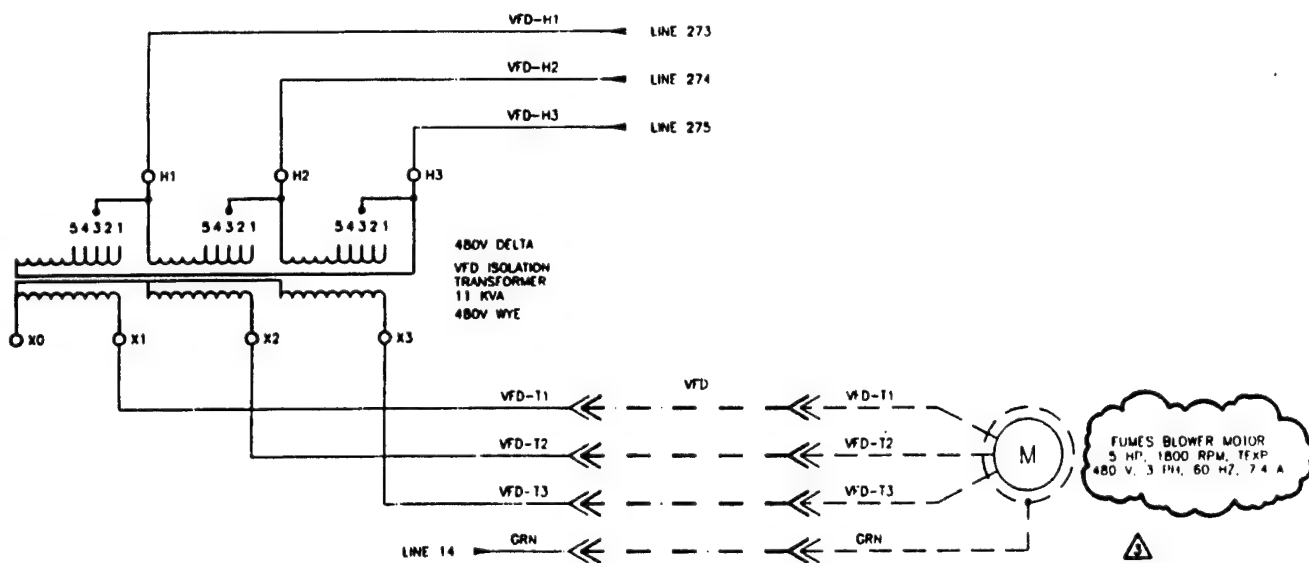
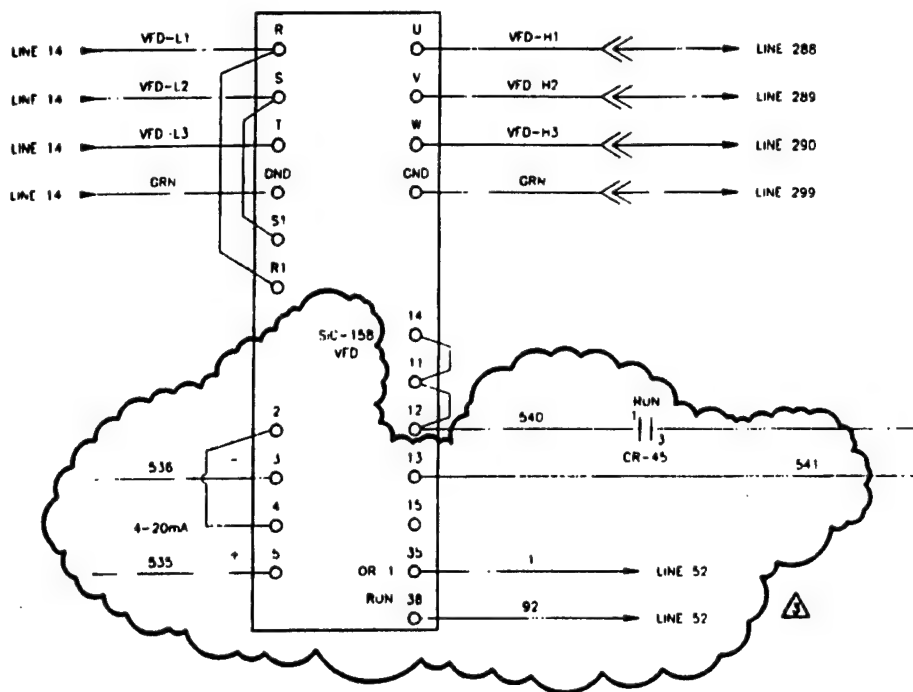
REFERENCE DRAWINGS

NUMBER	TITLE
PID120	PIPING & INSTRUMENT DIAGRAM
IC120	INTERCONNECTION DIAGRAM
LCP120	LOCAL CONTROL PANEL ASSEMBLY
RCP120	REMOTE CONTROL PANEL ASSEMBLY
FTA120	FUEL TRAIN ASSEMBLY



CONTINUED ON DWG ES120-5

REVISIONS						ENGINEERING RECORD				<div>Arrtech</div> <div>ENVIRONMENTAL SYSTEMS</div>	<div>PREPARED FOR</div> <div>ROY F. WESTON, INC.</div>
NO	DESCRIPTION	BY	DATE	CRD	DATE	SCALE	NONE	DATE	DATE		
0	FOR CONSTRUCTION	JW	3-4-95			JW	1-3-95				
1	REVISED ES120-1, 2, 3 & 5	JW	4-8-95								
2	RECORD	JW	7-6-95								
3	FIELD MODIFICATIONS	CLP	8/1/96								
										CLIENT JOB	
										ELECTRICAL SCHEMATIC AFTERBURNER	
										APPROVED	DWG. #: ES120-4
										REVISION 3	

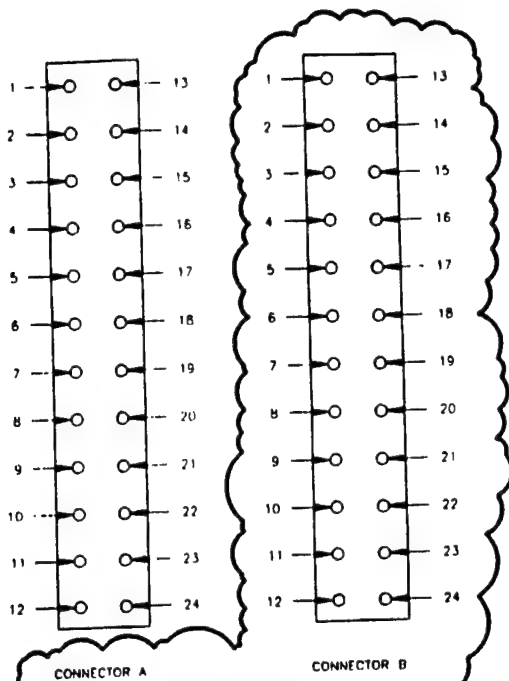


LAST WIRE USED 120VAC 90. 24VDC - 541

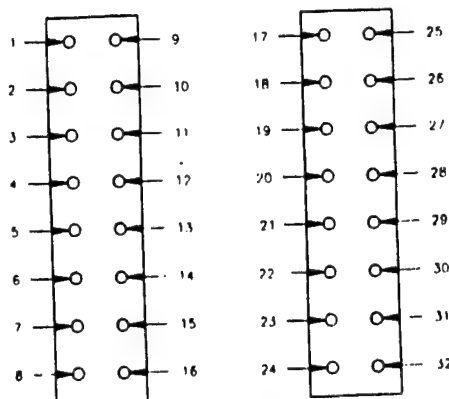
GENERAL NOTES

REFERENCE DRAWINGS

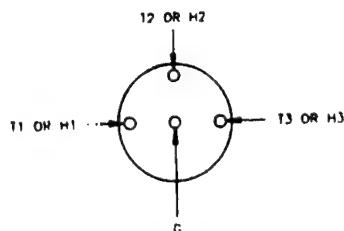
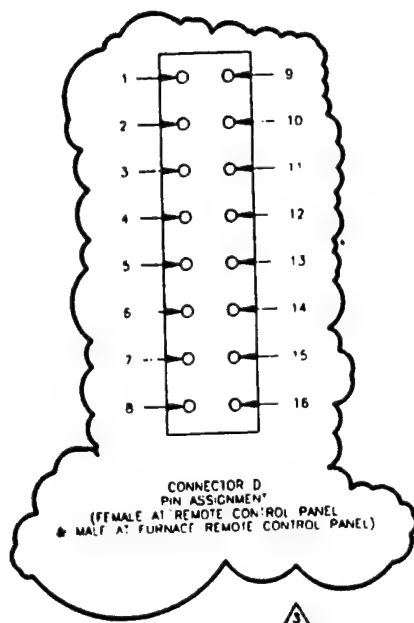
NUMBER	TITLE
PI0120	P.I.PING & INSURMENT DIAGRAM
IC120	INTERCONNECTION DIAGRAM
LCP120	LOCAL CONTROL PANEL ASSEMBLY
RCP120	REMOTE CONTROL PANEL ASSEMBLY
FTA120	FUEL TRAIN ASSEMBLY



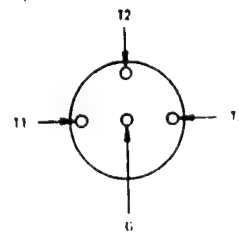
PIN ASSIGNMENT
(FEMALE AT REMOTE CONTROL PANEL
& MALE AT LOCAL CONTROL PANEL)



CONNECTOR C
PIN ASSIGNMENT
(FEMALE AT REMOTE CONTROL PANEL
& MALE AT LOCAL CONTROL PANEL)



RECEPTACLE VFD & MS
PIN ASSIGNMENT
(LOCATED AT REMOTE CONTROL PANEL
AND VFD ISOLATION TRANSFORMER)



PLUG VFD & MS
PIN ASSIGNMENT
(LOCATED AT MOTOR)

LEGEND

- INTERCONNECTING WIRING INSIDE REMOTE CONTROL PANEL
- INTERCONNECTING WIRING INSIDE LOCAL CONTROL PANEL
- INTERCONNECTING WIRING ON AFTERBURNER SHED
- INTERCONNECTING WIRING BY OTHERS
- REMOTE CONTROL PANEL TERMINAL
- LOCAL CONTROL PANEL TERMINAL
- DEVICE PIN OR TERMINAL

MOTOR
TEMP
H2, 7.4 A

PER MOTOR
TEMP
H2, 2.1 A

REVISIONS				ENGINEERING RECORD			
NO	DESCRIPTION	BY	DATE	CHKD	DATE	SCALE	NOTE
0	FOR CONSTRUCTION	JW	3-6-95			JW	1-3-95
1	ADDED VFD ISOLATION XMR	JW	4-27-95				
2	RECORD	JW	7-6-95				
3	FIELD MODIFICATIONS	CLD	8-11-96				

Artech
ENVIRONMENTAL SYSTEMS

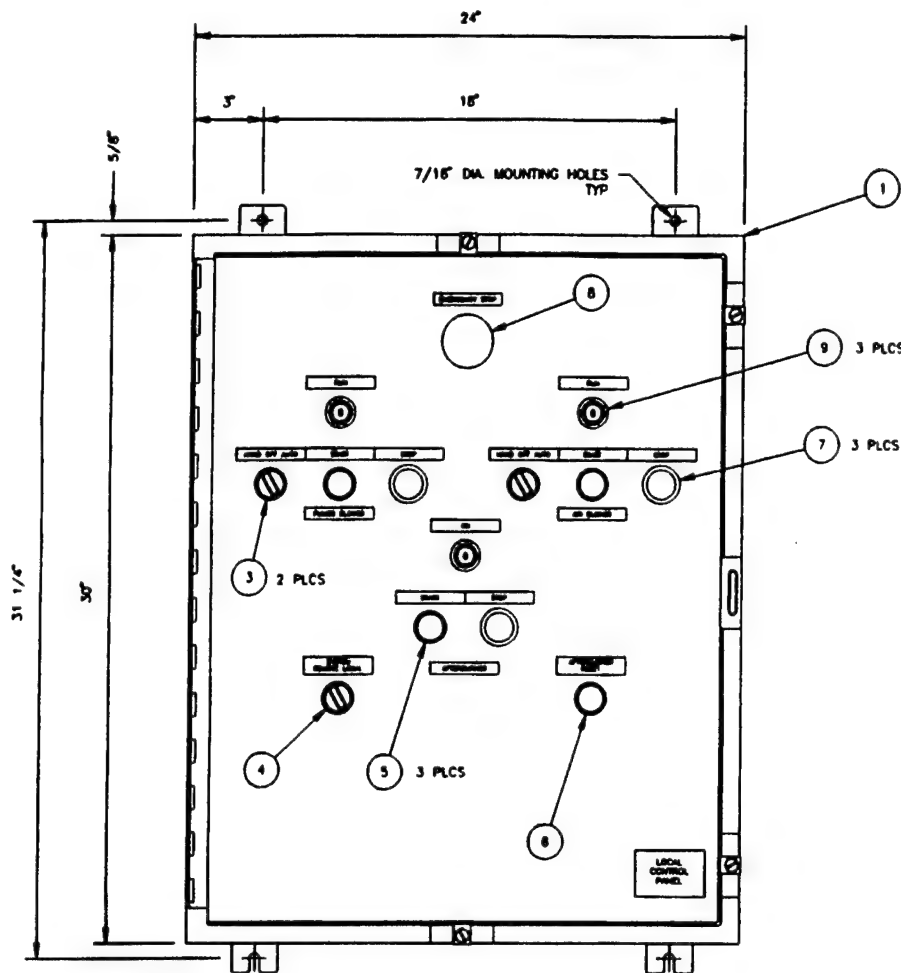
PREPARED FOR
ROY F. WESTON, INC.

CLIENT JOB

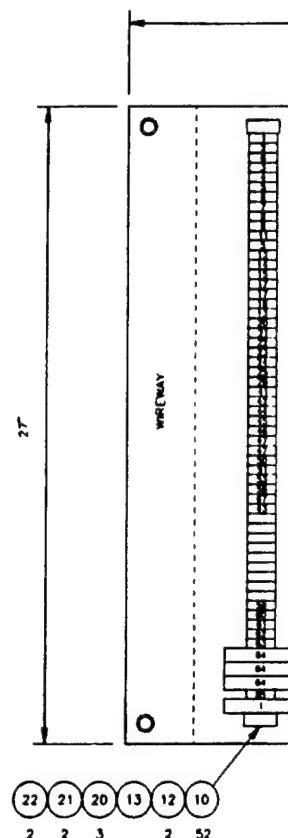
ELECTRICAL SCHEMATIC AFTERBURNER

APPROVED

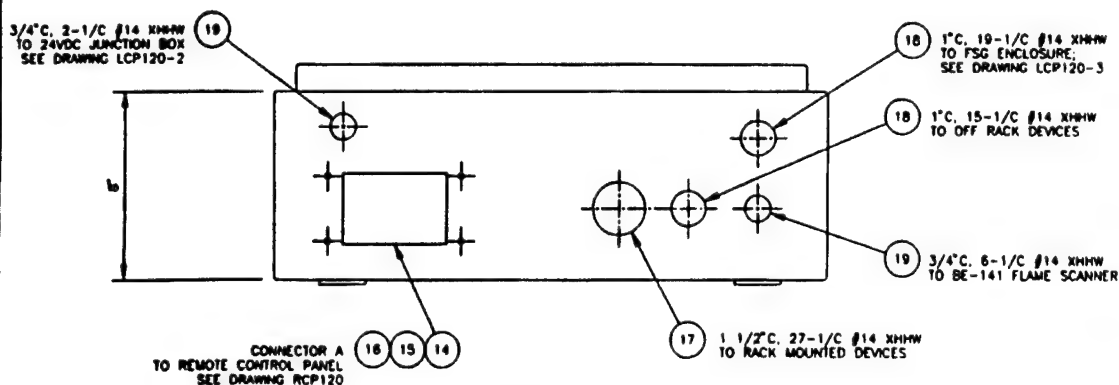
DWG. #: ES120-5 REVISION 3



FRONT



E



BOTTOM

LOCAL CONTROL PANEL

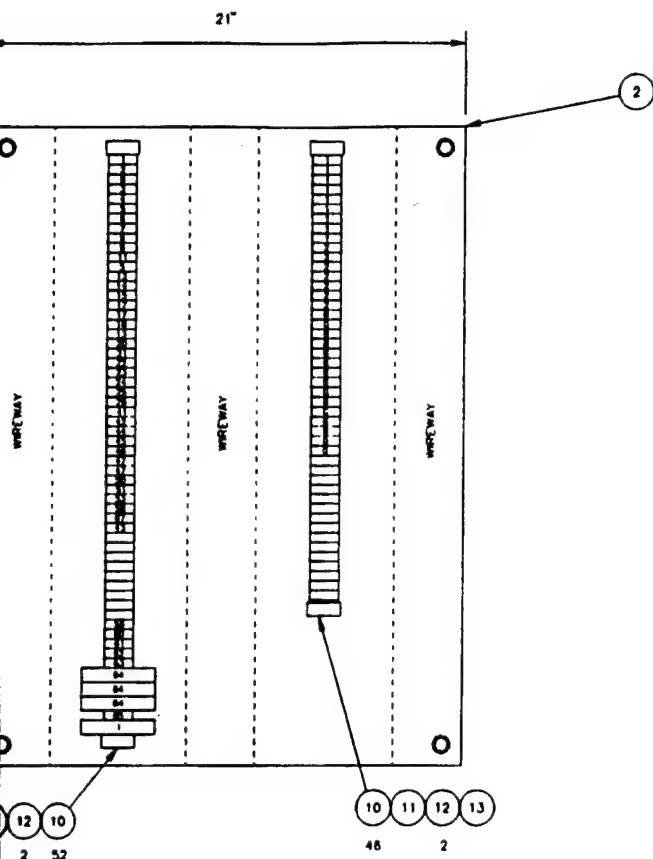
GENERAL NOTES

- CONDUIT & CONNECTOR LOCATIONS ARE FOR REFERENCE ONLY. THE ACTUAL LOCATION MAY VARY FROM THAT SHOWN DUE TO INSTALLATION PARAMETERS.
- ENCLOSURE FINISH: #61 GREY POLYESTER POWDER COATING.
- NAMEPLATES TO BE WHITE PLASTIC LAMINATE WITH BLACK CHARACTERS.
- WIRE TERMINATIONS TO TERMINAL BLOCKS TO BE BY HOOK FORK TYPE CONNECTORS.

REFERENCE DRAWINGS

NUMBER	TITLE
ES120	ELECTRICAL SCHEMATIC
IC120	INTERCONNECTION DIAGRAM
RCP120	REMOTE CONTROL PANEL ASSEMBLY

1



BACK PANEL

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	ENCLOSURE; HOFFMAN A-30H24BLP
2	1	PANEL; HOFFMAN A-30P24
3	2	SWITCH, SELECTOR; ALLEN-BRADLEY 800H-JR4AP
4	1	SWITCH, SELECTOR; ALLEN-BRADLEY 800H-HR2AP
5	3	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800H-R2D1P
6	1	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800H-R2D1PD1P
7	3	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800H-FRXT2D2P
8	1	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800H-FRXT6D2P
9	3	INDICATOR; ALLEN-BRADLEY 800H-PR16G
10	98	BLOCK, TERMINAL; ALLEN-BRADLEY 1492-F3
11	1	END BARRIER, TERMINAL; ALLEN-BRADLEY 1492-N18
12	4	END STOP, TERMINAL; ALLEN-BRADLEY 1492-N23
13	A/R	MOUNTING RAIL, TERMINAL; ALLEN-BRADLEY 1492-N22
14	1	BASE, CONNECTOR; T & B PB448
15	1	CONNECTOR; T & B FS124 (1-24)
16	1	CONNECTOR; T & B FS148 (25-48)
17	1	HUB, CONDUIT; CROUSE-HINDS HUB5 (1 1/2")
18	2	HUB, CONDUIT; CROUSE-HINDS HUB3 (1")
19	1	HUB, CONDUIT; CROUSE-HINDS HUB2 (3/4")
20	3	BLOCK, FUSE; ALLEN-BRADLEY 1492-UF8
21	2	FUSE; 13/32" x 1 1/2", 3 AMP
22	2	FUSE; 13/32" x 1 1/2", 1 AMP

REVISIONS						ENGINEERING RECORD			
NO	DESCRIPTION	BY	DATE	CHK	DATE	SCALE	DATE	CHK	DATE
0	FOR CONSTRUCTION	JW	3-4-85			5" = 1'-0"			
1	ADDED RESET SWITCH	JW	4-7-85				10-2-94		
2	RECORD	JW	7-4-85						
2	As-Built	CLP	8/1/76						

Artech
ENVIRONMENTAL SYSTEMS

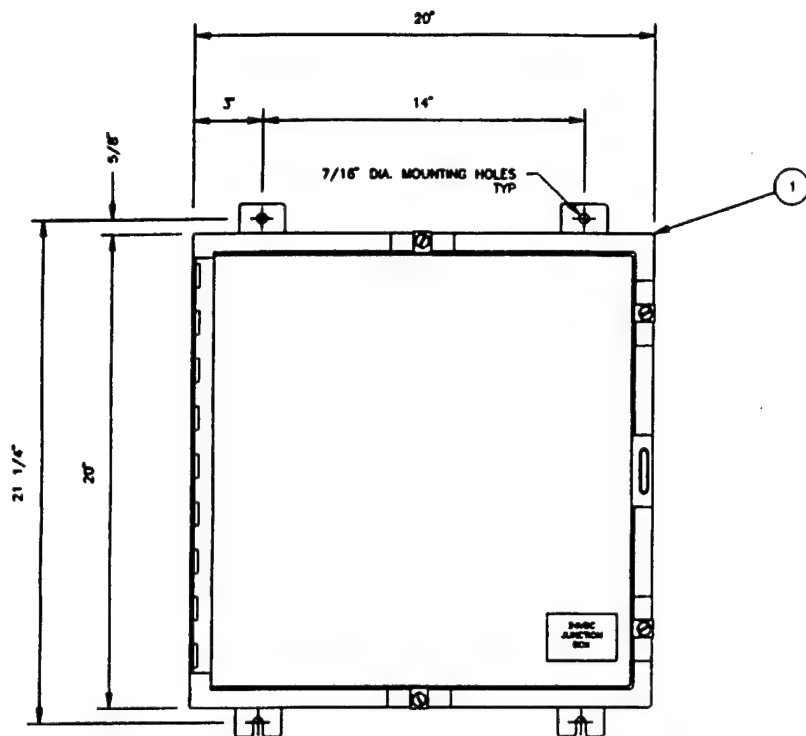
PREPARED FOR
ROY F. WESTON, INC

CLIENT JOB

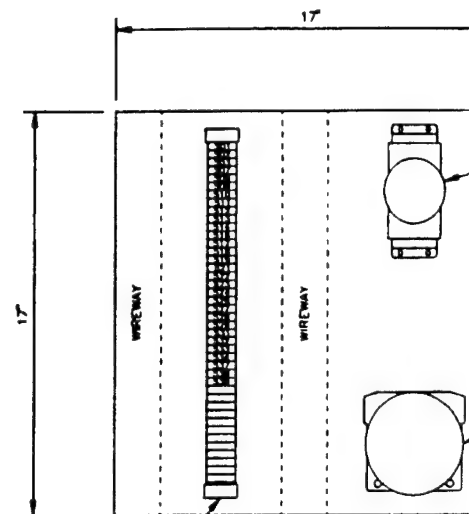
LOCAL CONTROL PANEL ASSY
AFTERBURNER

APPROVED

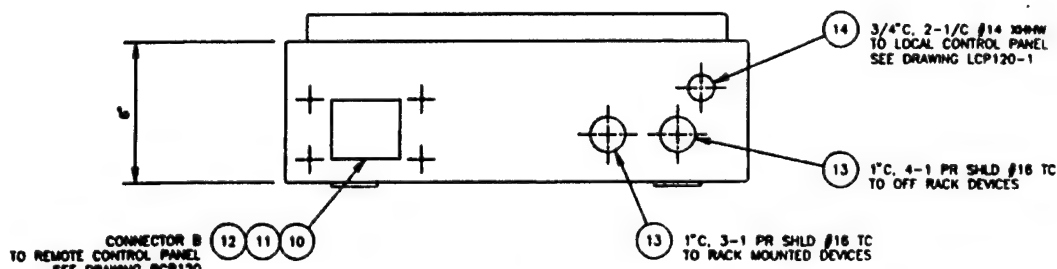
BWB: #1 LCP120-1 REVISION 2



FRONT



BACK PANEL



BOTTOM

24VDC JUNCTION BOX

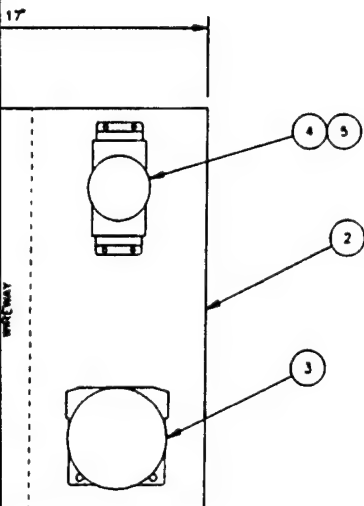
GENERAL NOTES

1. CONDUIT & CONNECTOR LOCATIONS ARE FOR REFERENCE ONLY. THE ACTUAL LOCATION MAY VARY FROM THAT SHOWN DUE TO INSTALLATION PARAMETERS.
2. ENCLOSURE FINISH: #61 GREY POLYESTER POWDER COATING.
3. NAMEPLATES TO BE WHITE PLASTIC LAMINATE WITH BLACK CHARACTERS

REFERENCE DRAWINGS

NUMBER	TITLE
ES120	ELECTRICAL SCHEMATIC
IC120	INTERCONNECTION DIAGRAM
RCP120	REMOTE CONTROL PANEL ASSEMBLY

1

[illegible]

PANEL

[illegible]

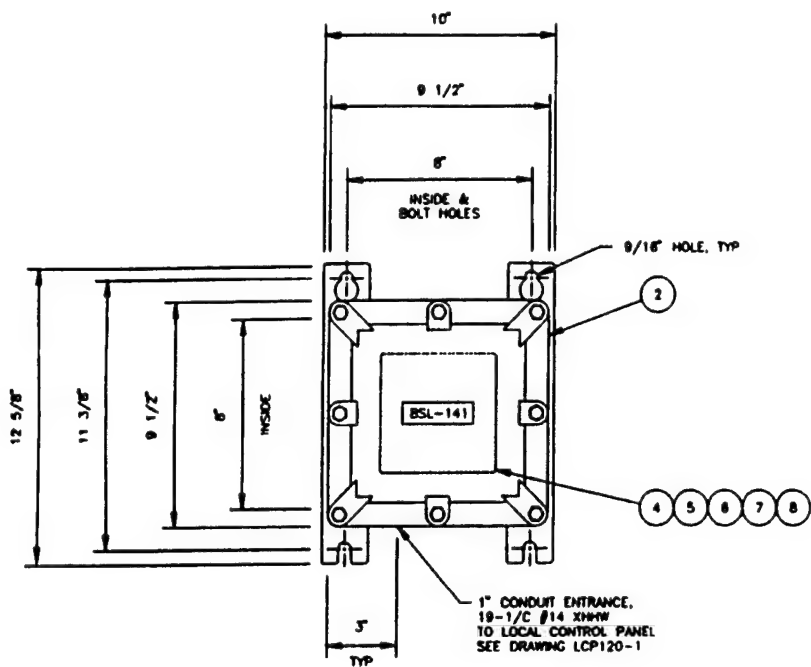
PREPARED FOR
ROY F. WESTON, INC

CLIENT JOB

LOCAL CONTROL PANEL ASSY
AFTERBURNER

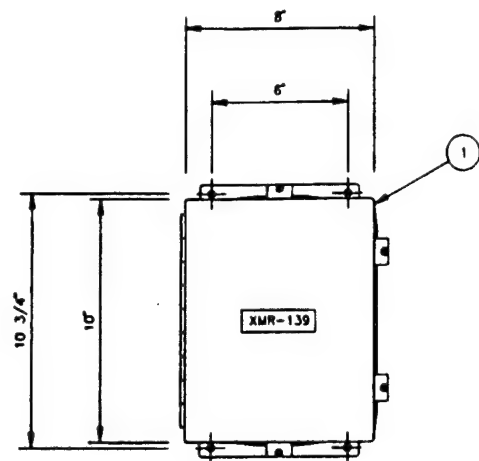
APPROVED

DWG. #: LCP120-2	REVISION 3
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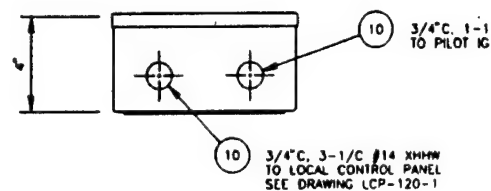


FLAME SAFEGUARD ENCLOSURE

NOTE: INSTALL VENT (C-H ECD13) IN TOP OF ENCLOSURE & DRAIN (C-H ECD11) IN BOTTOM OF ENCLOSURE



FRONT



BOTTOM

IGNITION TRANSFORMER

GENERAL NOTES

- CONDUIT LOCATIONS ARE FOR REFERENCE ONLY. THE ACTUAL LOCATION MAY VARY DUE TO INSTALLATION PARAMETERS.
- FSG ENCLOSURE FINISH: NONE
- TRANSFORMER FINISH: # 81 GREY POLYESTER POWDER COATING
- NAMEPLATES TO BE WHITE LAMINATE PLASTIC WITH BLACK CHARACTERS.

REFERENCE DRAWINGS

NUMBER	TITLE
ES120	ELECTRICAL SCHEMATIC
IC120	INTERCONNECTION DIAGRAM
RCP120	REMOTE CONTROL PANEL ASSEMBLY

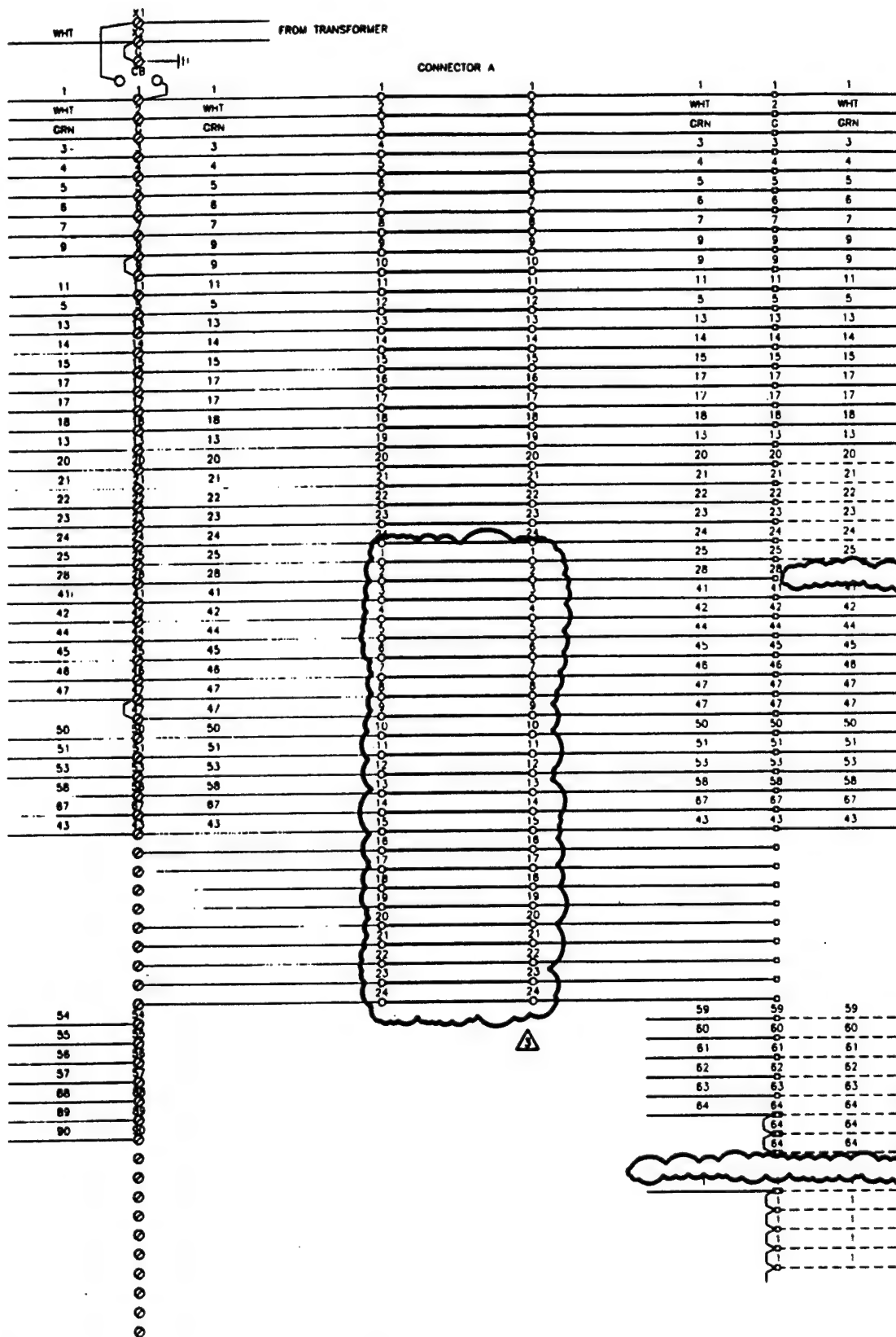
1



10 3/4" C. 1-1/C #18 15KV
TO PILOT IGNITOR

ON TRANSFORMER ENCLOSURE

[illegible]



TO PSL-122 FUEL PRESSURE LOW SWITCH (NO)
 TO PSH-123 FUEL PRESSURE HIGH SWITCH (NC)
 TO PSH-135 FUEL PRESSURE HIGH SWITCH (NC)
 TO PSL-130 AIR PRESSURE LOW SWITCH (NO)
 TO PSL-155 FUMES PRESSURE LOW SWITCH (NO)
 TO PSH-153 FUMES PRESSURE HIGH SWITCH (NC)

TO ZSC-129 FUEL VALVE CLOSED SWITCH (B)
 TO ZSL-131 LOW FIRE SWITCH (C)
 TO ZSL-131 LOW FIRE SWITCH (NO)
 TO TMR-139 IGNITION TRANSFORMER (L1)
 TO BV-105 PILOT FUEL BLOCK VALVE
 TO BV-127 BURNER FUEL BLOCK VALVE (1)
 TO BV-129 BURNER FUEL BLOCK VALVE (2)
 TO BV-128 BURNER FUEL BLOCK VALVE

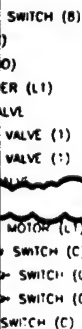
TO TY-131 FIRM RATE CONTROL MOTOR (L1)
 TO PSL-122 FUEL PRESSURE LOW SWITCH (C)
 TO PSH-123 FUEL PRESSURE HIGH SWITCH (C)
 TO PSH-135 FUEL PRESSURE HIGH SWITCH (C)
 TO PSL-130 AIR PRESSURE LOW SWITCH (C)

GENERAL NOTES

REFERENCE DRAWINGS

NUMBER	TITLE
PD120	PIPING & INSTRUMENT DIAGRAM
LS120	ELECTRIC SCHEMATIC
ICP120	LOCAL CONTROL PANEL ASSEMBLY
RCP120	REMOTE CONTROL PANEL ASSEMBLY

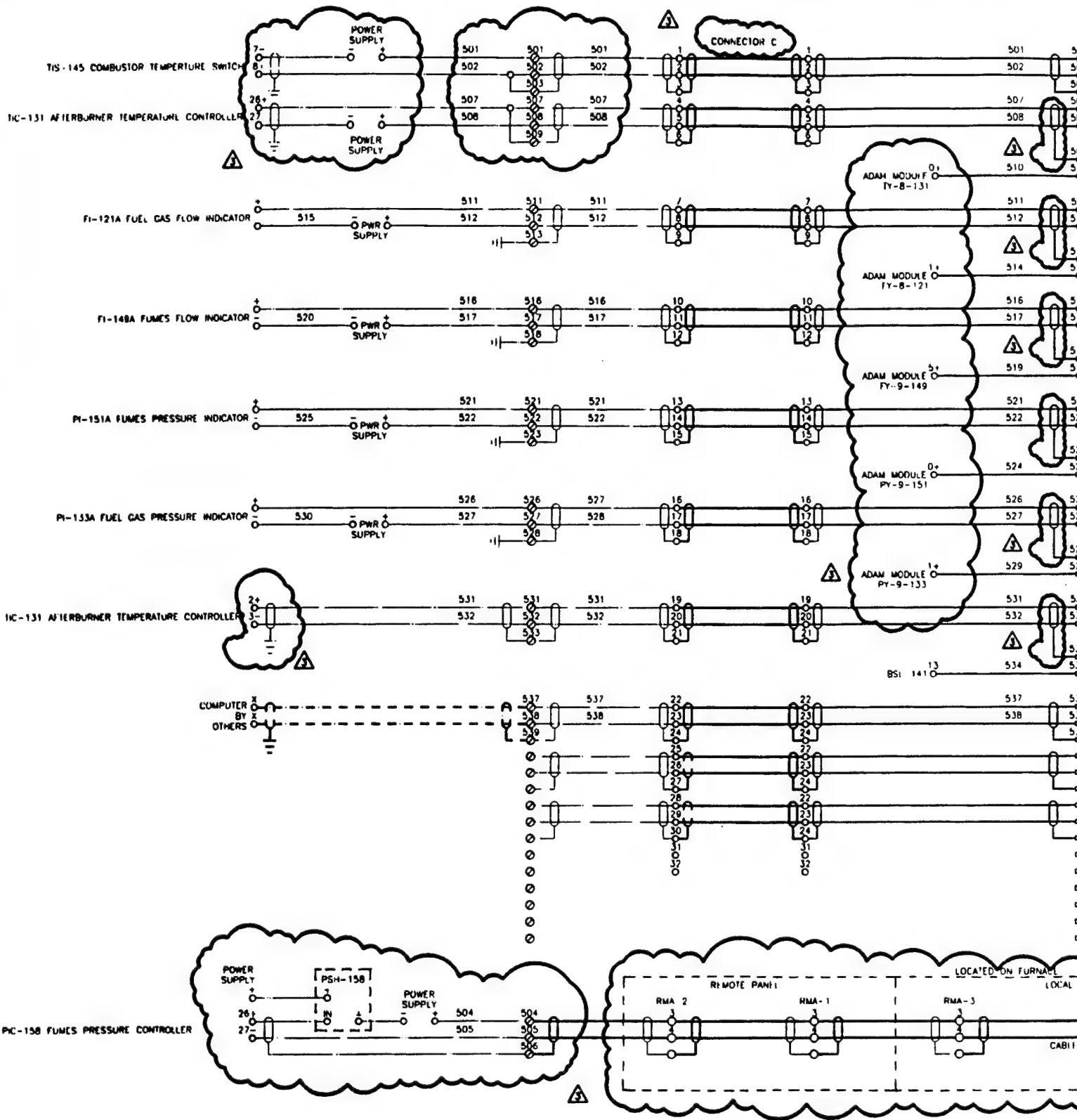
①



LEGEND

- [illegible]

RE MISSION 3



ANALOG WIRING

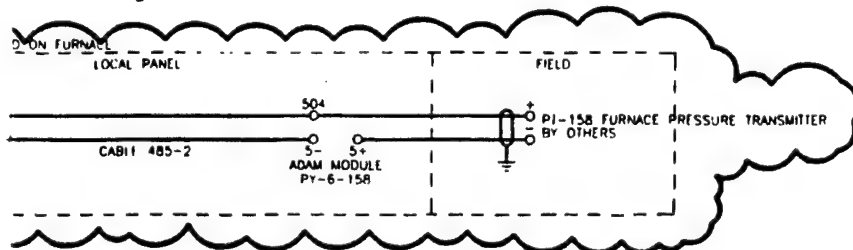
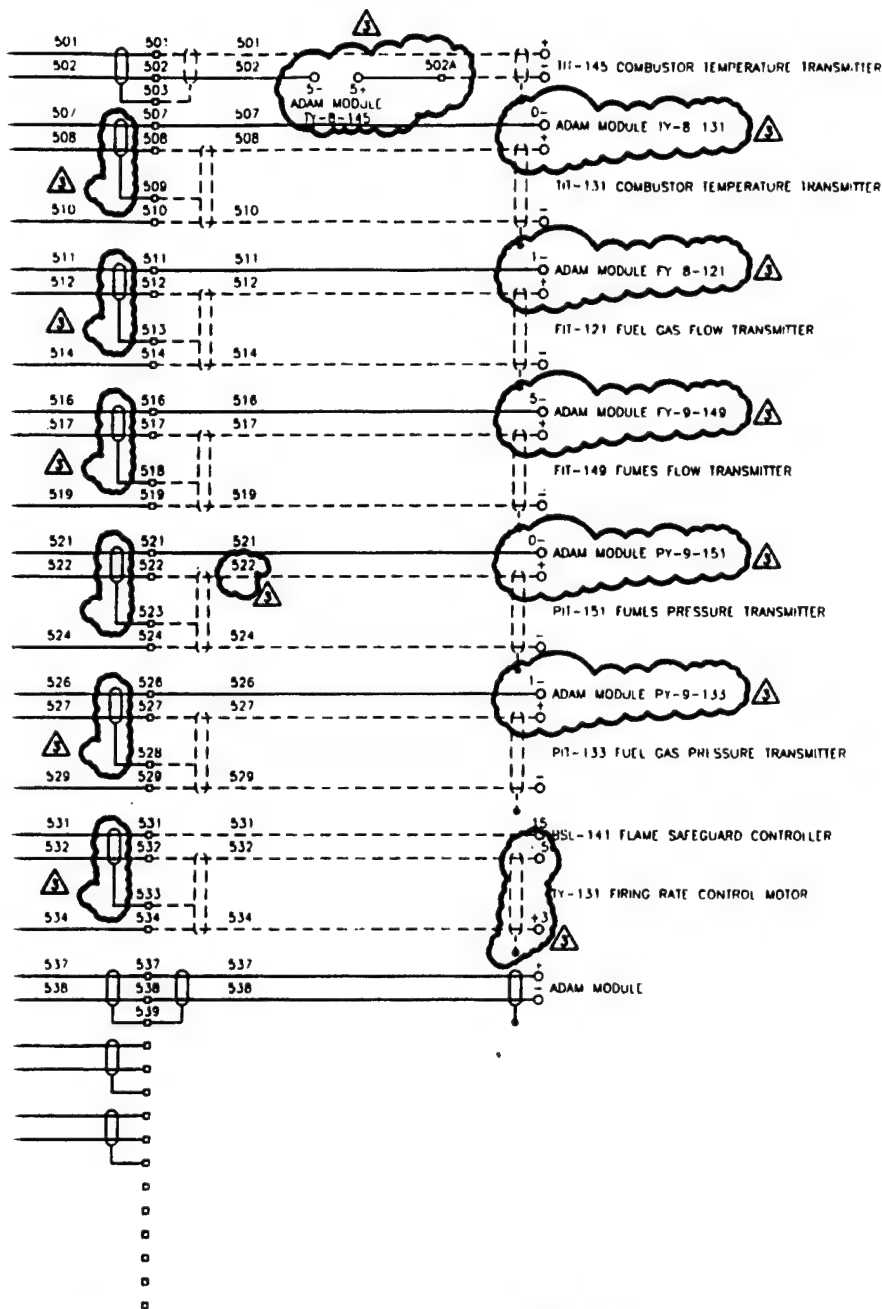
GENERAL NOTES

REFERENCE DRAWINGS

NUMBER	TITLE
PID120	PIPING & INSTRUMENT DIAGRAM
ES120	ELECTRIC SCHEMATIC
LCP120	LOCAL CONTROL PANEL ASSEMBLY
RCP120	REMOTE CONTROL PANEL ASSEMBLY

PLOTTED 08/02/86 9:33
PLT. SC. 1-1

1



LEGEND

- INTERCONNECTING WIRING INSIDE REMOTE CONTROL PANEL
- - - INTERCONNECTING WIRING INSIDE LOCAL CONTROL PANEL
- ... INTERCONNECTING WIRING ON AFTERBURNER SKID
- ... INTERCONNECTING WIRING BY OTHERS
- REMOTE CONTROL PANEL TERMINAL
- LOCAL CONTROL PANEL TERMINAL
- DEVICE PIN OR TERMINAL

REVISIONS				ENGINEERING RECORD			
NO	DESCRIPTION	BY	DATE	CRD	DATE	SCALE	NONE
0	FOR CONSTRUCTION	JW	3-6-85			DWN	DATE
1	REVISED IC120-1 & 3	JW	4-7-85			JW	1-5-95
2	RECORD	JW	7-4-85			FWCH	DATE
3	FIELD MODIFICATIONS	clp	8/1/96				

ArrTech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC.

CLIENT JOB

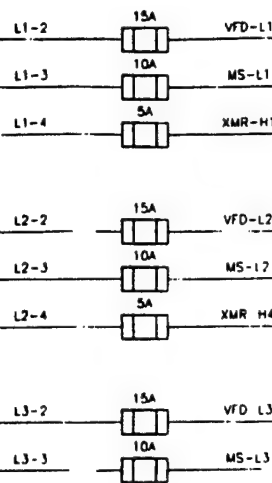
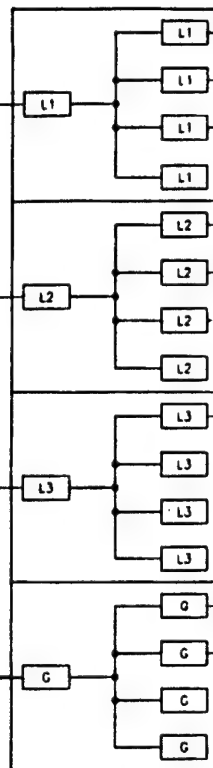
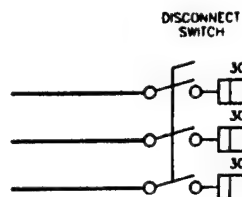
INTERCONNECTION DIAGRAM AFTERBURNER

APPROVED

DWG. #: IC120-2

REVISION 3

480V, 3 PH, 60 HZ
POWER
BY
OTHERS



GRN
GRN

480 VOLT WIRING

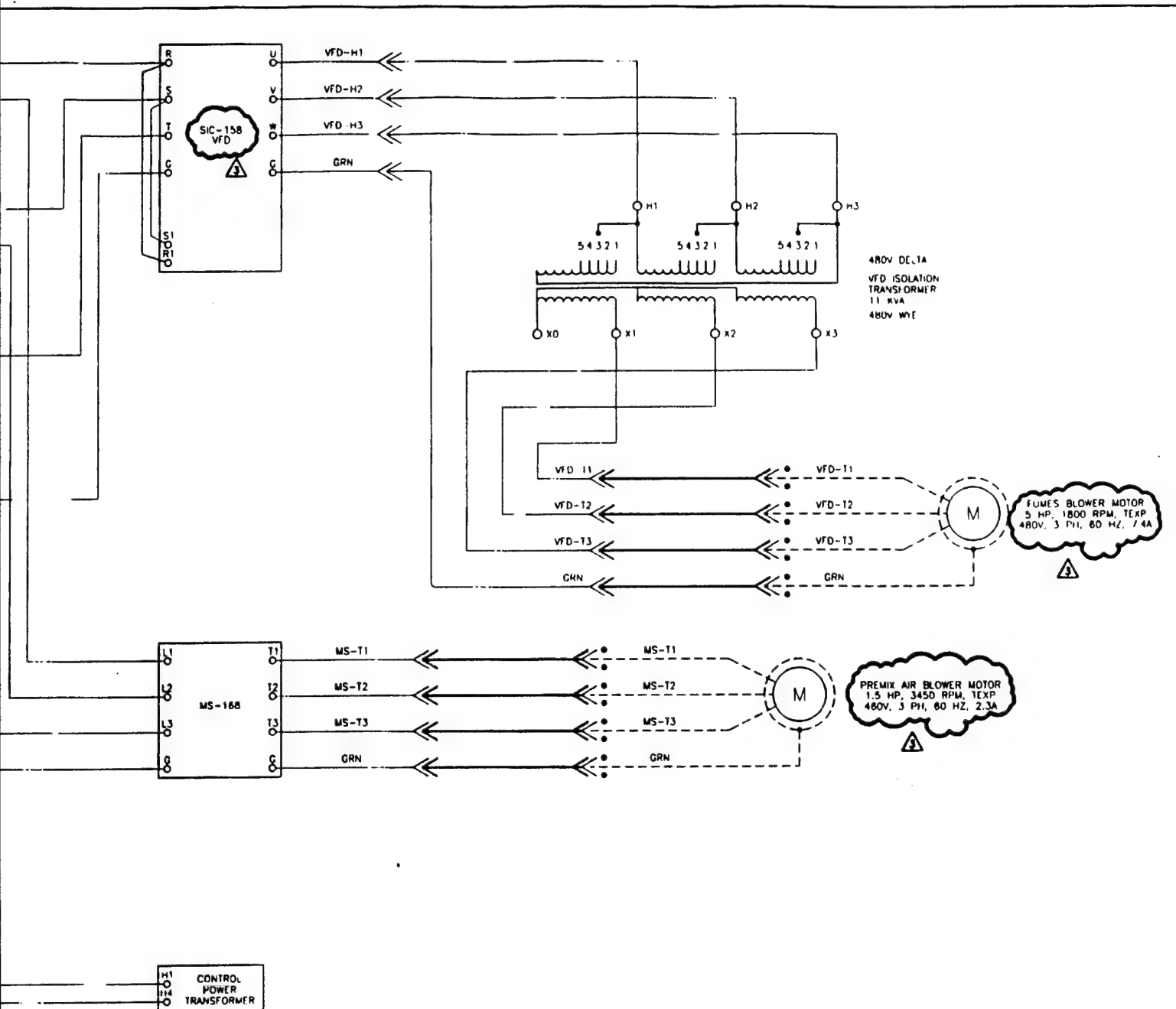
GENERAL NOTES

REFERENCE DRAWINGS

NUMBER	TITLE
PI0120	PIPING & INSTRUMENT DIAGRAM
ES120	ELECTRIC SCHEMATIC
LC0120	LOCAL CONTROL PANEL ASSEMBLY
RC0120	REMOTE CONTROL PANEL ASSEMBLY

PLOTTED 08/02/98 9:35
P.L.T. SC 1-1

1

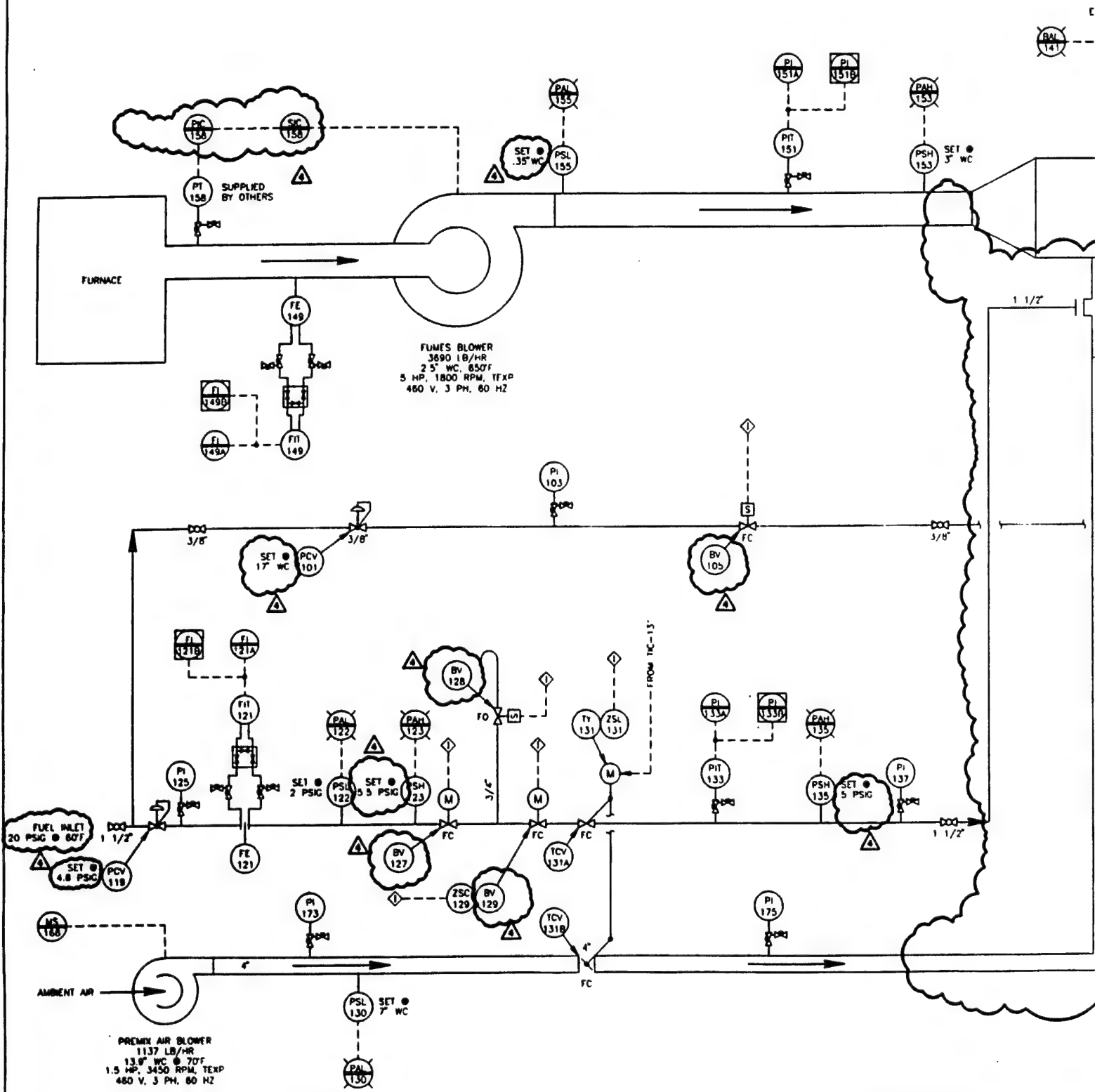


LEGEND

- INTERCONNECTING WIRING INSIDE REMOTE CONTROL PANEL
- ===== INTERCONNECTING WIRING INSIDE LOCAL CONTROL PANEL
- INTERCONNECTING WIRING ON AFTERBURNER SKID
- INTERCONNECTING WIRING BY UTILITIES
- REMOTE CONTROL PANEL TERMINAL
- LOCAL CONTROL PANEL TERMINAL
- DEVICE PIN OR TERMINAL

REVISIONS						ENGINEERING RECORD				<div> </div>	PREPARED FOR ROY F. WESTON, INC.
NO	DESCRIPTION	BY	DATE	CAD	DATE	SCALE	NONE	DATE	DATE		
0	FOR CONSTRUCTION	JW	3-8-95			JW	1-5-95				
1	ADDED VFD ISOLATION XMR	JW	4-7-95								
2	RECORD	JW	7-6-95								
3	FIELD MODIFICATIONS	sp	8-7-95								
<div> <div>2</div> <div>APPROVED</div> <div>DWG. #: IC120-3</div> <div>REVISION 3</div> </div>											CLIENT JOB

INTERCONNECTION DIAGRAM AFTERBURNER



GENERAL NOTES

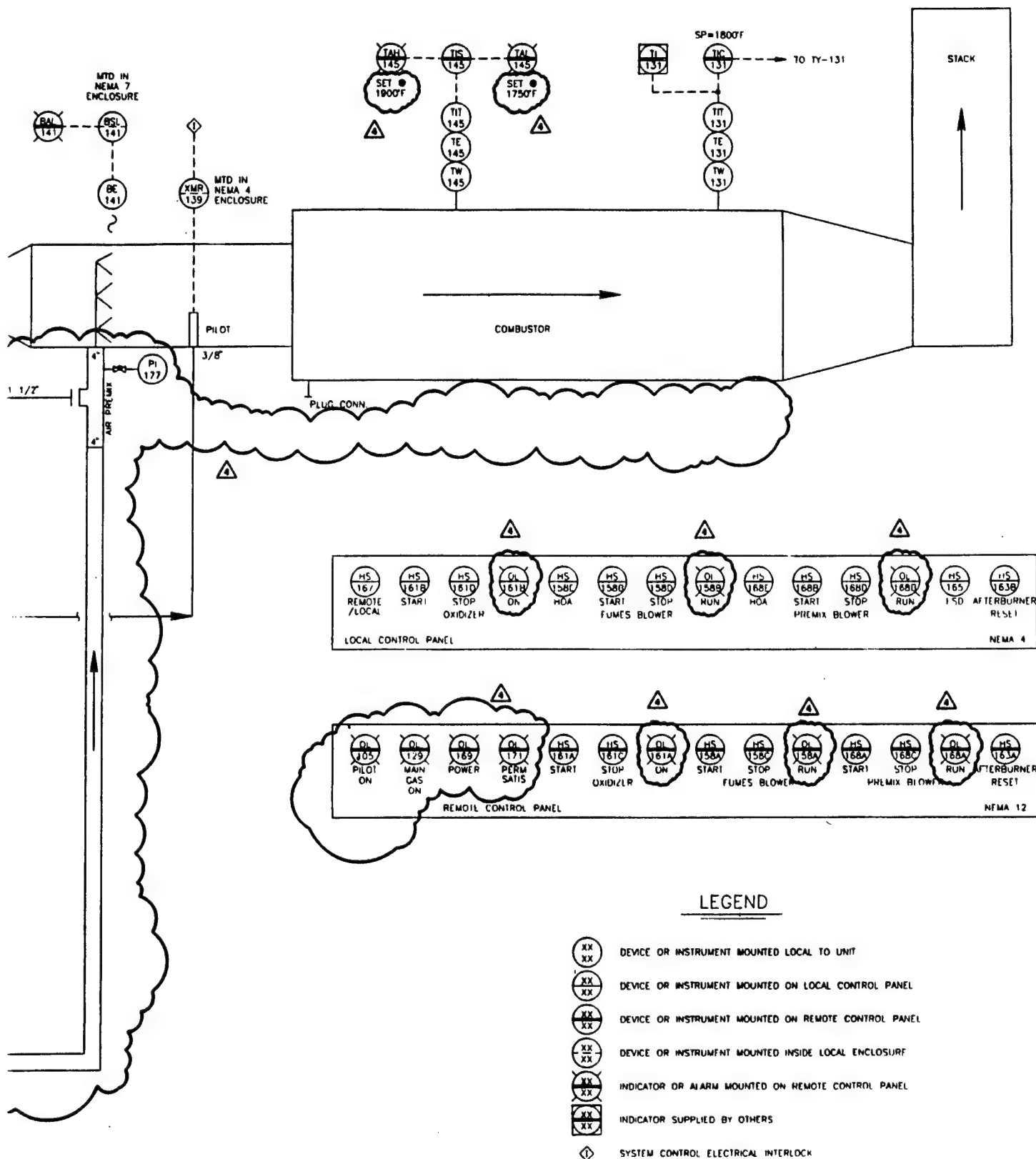
1. THE BURNER MANAGEMENT SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH THE INTENT OF IRI GUIDELINES.
2. EQUIPMENT AREA CLASSIFICATION LOCAL EQUIPMENT - CLASS 1, DIVISION 2, GROUP D; REMOTE EQUIPMENT - UNCLASSIFIED
3. ALL LOCAL ELECTRICAL ENCLOSURES SHALL BE SUITABLE FOR OUTDOOR INSTALLATION
4. ALL ELECTRICAL INTERCONNECTIONS BETWEEN THE LOCAL CONTROL PANEL AND THE REMOTE CONTROL PANEL SHALL BE BY OTHERS
5. ALL LOCAL INTERCONNECTIONS, ELECTRICAL AND MECHANICAL, SHALL BE BY AIRTECH

REFERENCE DRAWINGS

NUMBER	TITLE
LCPI20	LOCAL CONTROL PANEL ASSEMBLY
RCPI20	REMOTE CONTROL PANEL ASSEMBLY
ES120	ELECTRICAL SCHEMATIC
IC120	INTERCONNECTION DIAGRAM
ITA120	FUEL TRAIN ASSEMBLY

PLOTTED BY
P.L.T. SC-11

1



REVISIONS					ENGINEERING RECORD				
NO	DESCRIPTION	BY	DATE	CHK	DATE	SCALE	NONE	DATE	DATE
0	FOR CONSTRUCTION	JW	3-6-95			JW	9-28-94		
1	ADDED HS-163B	JW	4-28-95						
2	RECORD	JW	7-6-95						
3	REROUTE DPSI-147	CM	8-4-95						
4	FIELD MODIFICATIONS	CLP	8/1/96						

Arleth
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC

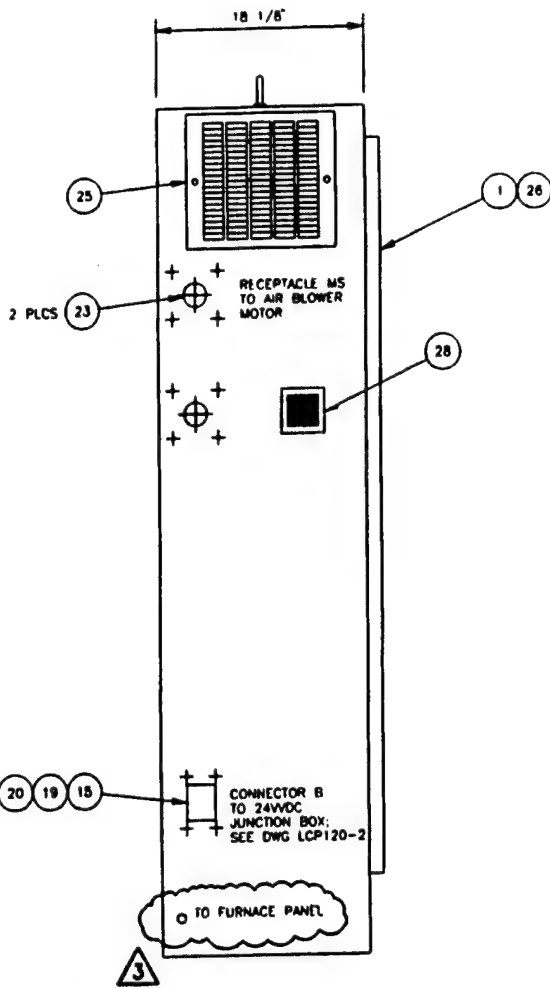
CLIENT JOB

P & ID
AFTERBURNER

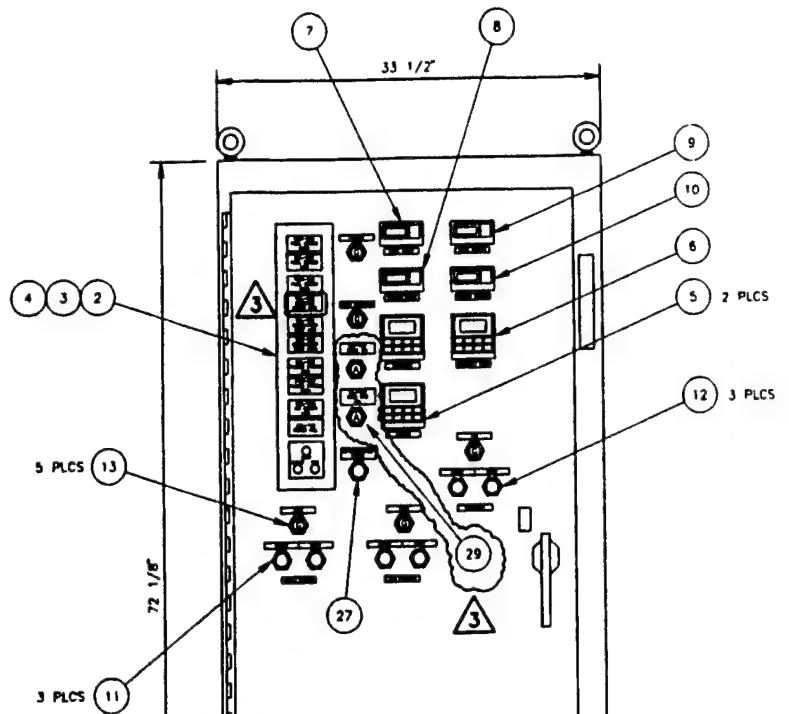
APPROVED

DWG. #: PID120

REVISION 4



LEFT SIDE



FRONT

REMOTE CONTROL PANEL

GENERAL NOTES

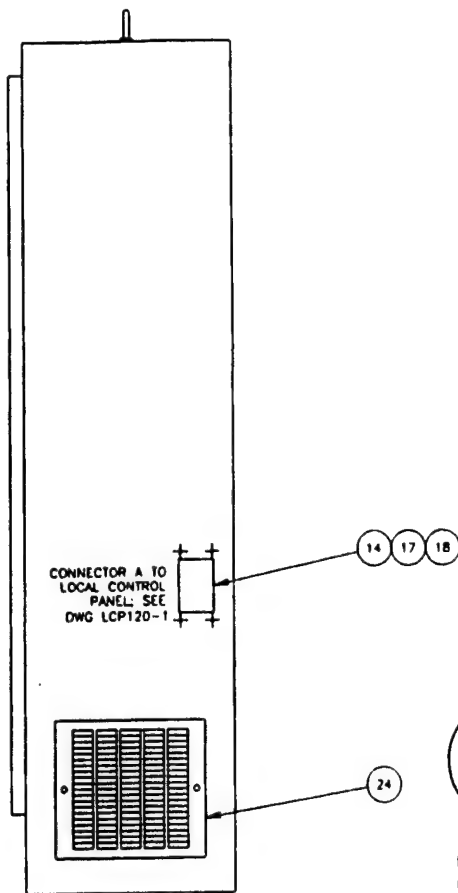
- CONNECTOR & RECEPTACLE LOCATIONS ARE FOR REFERENCE ONLY. THE ACTUAL LOCATION MAY VARY FROM THAT SHOWN DUE TO INSTALLATION PARAMETERS.
- ENCLOSURE FINISH: #61 GREY POLYESTER POWDER COATING.
- NAMEPLATES TO BE WHITE PLASTIC LAMINATE WITH BLACK CHARACTERS.

REFERENCE DRAWINGS

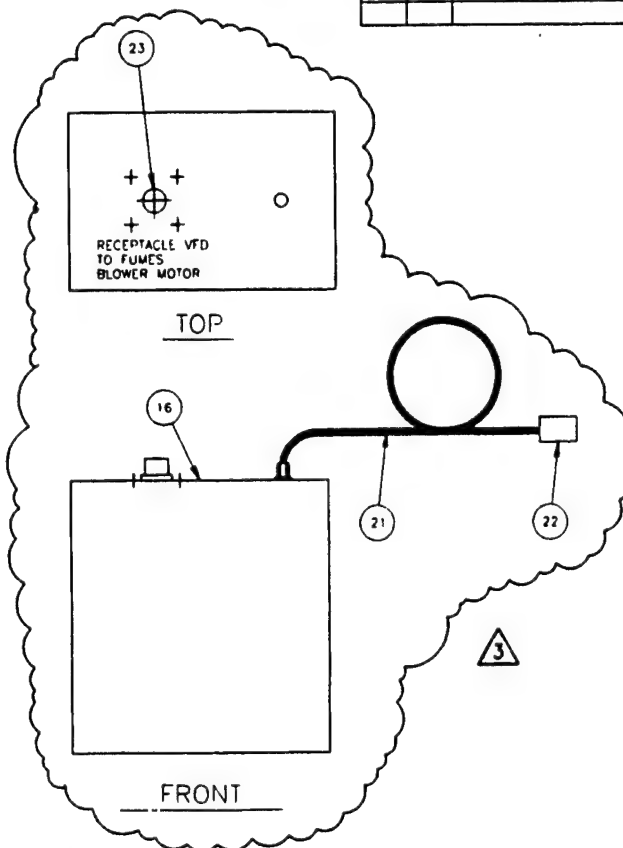
NUMBER	TITLE
ES120	ELECTRICAL SCHEMATIC
IC120	INTERCONNECTION DIAGRAM
LCP120	LOCAL CONTROL PANEL

①

CS
CS



RIGHT SIDE



VFD ISOLATION TRANSFORMER

BILL OF MATERAIL

ITEM	QTY	DESCRIPTION
1	1	ENCLOSURE; HOFFMAN A-72XM3418
2	1	CABINET, ANNUNCIATOR; FONAN 1.6X3LR-2000
3	10	MODULE, ALARM; RONAN X3-2004GP-115VAC
4	1	MODULE, PB & FLASHER; RONAN X3-5002-115VAC
5	2	CONTROLLER; HONEYWELL DC300C-0-0A0-20-0000-0
6	1	SWITCH; HONEYWELL DC200I-2-000-100000-0
7	1	METER; MOORE IND DSX/4-20MA/0-1000/1.0VLP [P]
8	1	METER; MOORE IND DSX/4-20MA/0-4000/1.0VLP/DZ [P]
9	1	METER; MOORE IND DSX/4-20MA/0-6/1.0VLP [P]
10	1	METER; MOORE IND DSX/4-20MA/0-3/1.0VLP [P]
11	3	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800T-A2D1
12	3	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800T-FX2D4
13	5	INDICATOR; ALLEN-BRADLEY 800T-PL16G
14	1	BASE, CONNECTOR; T & B PB448
15	1	BASE, CONNECTOR; T & B PB132
16	1	TRANSFORMER, ISOLATION; SQUARE D 11T105HDIT
17	1	CONNECTOR; T & B MS224 (1-24)
18	1	CONNECTOR; T & B MS 248 (25-48)
19	1	CONNECTOR; T & B MS216 (1-16)
20	1	CONNECTOR; T & B MS232 (17-32)
21	1	CABLE; TYPE SO, 4-#8 AWG x 10' LG, 600V, 28 A
22	1	PLUG; MELTRIC 33-11043 (20 AMP)
23	3	RECEPTACLE; MELTRIC 33-14043 (20 AMP)
24	1	PACKAGE, COOLING FAN; HOFFMAN A-PA10AXFN
25	1	GRILLE, EXHAUST; HOFFMAN A-EXGR10
26	1	ADAPTER, OPERATOR; HOFFMAN A-21ABVA
27	1	SWITCH, PUSHBUTTON; ALLEN-BRADLEY 800T-A2A2
28	1	HORN, ALARM; EDWARDS 120VAC
29	2	INDICATOR; ALLEN BRADLEY 800T-PL16A

REVISIONS						ENGINEERING RECORD			
NO.	DESCRIPTION	BY	DATE	CHK	DATE	SCALE	1 1/2" = 1'-0"	DATE	DATE
0	FOR CONSTRUCTION	JW	3-4-95			JW	1-9-95		
1	ADDED VFD ISOLATION XMR	JW	4-7-95			JW	1-9-95		
2	RECORD	JW	7-4-95			JW	1-9-95		
3	FIELD MODIFICATIONS	CAP	8-1-95			JW	1-9-95		

Arrtech
ENVIRONMENTAL SYSTEMS

PREPARED FOR
ROY F. WESTON, INC.

CLIENT JOB:

REMOTE CONTROL PANEL ASSY
AFTERBURNER

APPROVED

DWG. #: RCP120-1

REVISION 3

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	CONTROLLER, AC MOTOR; RELIANCE 2GU41005
2	1	STARTER, MOTOR; ALLEN-BRADLEY 509-AOD-90-90
3	3	ELEMENT, HEATER; ALLEN-BRADLEY W38 (2.51 A)
4	1	TRANSFORMER, CONTROL; ALLEN-BRADLEY 1497-N43
5	18	RELAY, CONTROL; ALLEN-BRADLEY 700-MA33A1-4
6	2	RELAY, TIME DELAY; ALLEN-BRADLEY 700-HR52TA17
7	1	SUPPLY, POWER; MOORE IND DPS/240C/240MA/UTDIN
8	1	SWITCH, DISCONNECT; ALLEN-BRADLEY 1494V-DS30
9	1	ROD, CONNECTING; ALLEN-BRADLEY 1494V-RA2
10	1	HANDLE, SWITCH; ALLEN-BRADLEY 1494V-H1
11	1	BLOCK, FUSE; ALLEN-BRADLEY 1494V-FS30
12	1	CLIPS, FUSE; ALLEN-BRADLEY 1401-N41
13	2	BLOCK, POWER DISTRIB; ALLEN-BRADLEY 1492-PD3141
14	8	BLOCK, FUSE; ALLEN-BRADLEY 1492-UF8
15	1	BREAKER, CIRCUIT; ALLEN-BRADLEY 1492-GH150 (15 A)
16	20	SOCKET, RELAY; ALLEN-BRADLEY 700-HN126
17	1	SOCKET, RELAY; ALLEN-BRADLEY 700-HN126
18	68	BLOCK, TERMINAL; ALLEN-BRADLEY 1492-F3
19	39	BLOCK, TERMINAL; ALLEN-BRADLEY 1492-F1
20	2	BARRIER, END; ALLEN-BRADLEY 1492-N18
21	6	ANCHOR, END; ALLEN-BRADLEY 1492-N23
22	A/R	RAIL, MOUNTING; ALLEN-BRADLEY 1492-N22
23	A/R	RAIL, MOUNTING; ALLEN-BRADLEY 100-DR1
24	3	FUSE; TYPE H, 30 AMP
25	3	FUSE; 13/32" x 1 1/2", 15 AMP
26	3	FUSE; 13/32" x 1 1/2", 10 AMP
27	2	FUSE; 13/32" x 1 1/2", 5 AMP
28	1	CURRENT SENSING RELAY WIELAND CSR 4-20mA

REVISIONS

NO	DESCRIPTION	BY	DATE	CHKD	DATE
0	FOR CONSTRUCTION	JW	3-6-95		
1	REVISED CR-110 & TERM 43	JW	4-27-95		
2	RECORD	JW	7-6-95		
3	FIELD MODIFICATIONS	CAP	8/1/96	CP	8/1/96

ENGINEERING RECORD

SCALE	DATE	CHKD	DATE
3"=1'-0"	1-9-95		



PREPARED FOR
ROY F. WESTON, INC

CLIENT JOB

REMOTE CONTROL PANEL ASSY
AFTERBURNER

APPROVED

DWG. # RCP120-2 REVISION 3

INDUCED DRAFT (I.D.) FAN

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRIPTION</u>
195978-1 (SHEET 1)	-	11/11/94	DESIGN 16A INDUSTRIAL ARRANGEMENT NO. 1 & SISW CLASSES II & III FIXED DISCHARGE - SI
195978-1 (SHEET 2)	-	-	DESIGN 16A ACCESSORIES
195978-2	-	11/11/94	INSULATION STUD

①

INDUCED DRAFT (I.D.) FAN

(I.D.) FAN

DRAWING DESCRIPTION

IGN 16A INDUSTRIAL FANS
ANGEMENT NO. 1 & 9
V CLASSES II & III
ED DISCHARGE - SIZES 11 thru 21

IGN 16A
ESSORIES

ULATION STUD

2

Technical drawing of a 16-inch diameter outlet flange, showing three views: front, side, and top.

Front View Dimensions:

- Overall Width: W
- Overall Height: H
- Flange Diameter: 16"
- Flange Thickness: T
- Flange Width: F
- Flange Depth: D
- Flange Radius: R
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S

Side View Dimensions:

- Overall Width: W
- Overall Height: H
- Flange Diameter: 16"
- Flange Thickness: T
- Flange Width: F
- Flange Depth: D
- Flange Radius: R
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S

Top View Dimensions:

- Overall Width: W
- Overall Height: H
- Flange Diameter: 16"
- Flange Thickness: T
- Flange Width: F
- Flange Depth: D
- Flange Radius: R
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S
- Flange Hole Diameter: ϕ
- Flange Hole Position: P
- Flange Hole Spacing: S

SEE DWG 16-O-1028 FOR FLANGED OUTLET DET.

SIDE ELEVATION (drive side)

FOUNDATION (plan) ▲

DIMENSIONS - INCHES (DOUBLE LETTER DIMENSIONS ARE FOR OVERALL REFERENCE ONLY)

FAN SIZE	WHL DIA.	SHAFT DIA.			KEYWAY SIZE			A	B	C	D	D'	E	F	F'	G	H	K	L	M	N	P	P'	Q +
		CL II	CL III	CL II	CL III																			
11	19 1/8	1 7/8	1 11/16	3/8 x 3/16	3/8 x 3/16	10%	14 7/16	13 1/16	15 3/16	18 1/2	15	16 1/8	13 1/2	11	20	26 5/16	4	17 3/8	9 5/16	1 1/2	1%	5 1/32		
13	22 5/8	1 7/8	1 11/16	3/8 x 3/16	3/8 x 3/16	12%	17 1/16	15 1/16	18 1/16	20 1/2	17 7/16	15 1/8	17	13	23	32 1/16	4 1/2	22 1/8	11 1/16	2	2 1/8	8 3/32		
15	26 1/8	1 5/8	2 3/16	1/2 x 1/4	1/2 x 1/4	14 1/2	19 1/16	17 1/16	21 7/16	23 3/4	19 7/16	18 1/8	18 1/2	15	26	35 1/8	5 1/2	23 1/2	12 3/4	2	2 1/8	7 1/2		
17	29 3/8	1 9/8	2 3/16	1/2 x 1/4	1/2 x 1/4	16 7/16	22 1/16	19 5/16	24 3/16	27	22 1/4	20 1/8	21	17	29	38 3/16	5 1/2	25 1/8	14 3/8	2	2 1/8	8 9/16		
19	33	2 3/16	2 1/8	1/2 x 1/4	1/2 x 1/4	18 1/4	24 1/2	22 1/8	26 7/8	28 1/2	24 1/16	22 1/4	23	19	32	41 1/8	5 3/4	27 3/8	16	2	2 1/8	9 1/8		
21	36 1/2	2 3/16	2 1/8	1/2 x 1/4	1/2 x 1/4	20 3/8	27 1/16	24 7/16	29 1/16	29 3/8	27 1/8	24 1/4	25	21	35	42 1/4	5 3/4	27 3/8	17 1/16	2	2 1/8	9 3/32		

+ FOR TYPE "C" SPARK RESISTANT CONSTRUCTION 200°F. AND ABOVE, ADD 3/8" TO DIMENSIONS SHOWN.

FAN SIZE	R	S	T	U	V	W	LS WHEEL* AM WHEEL		AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	NN
							J	J													
11	8 3/32	10 1/2	7 13/16	4 1/2	9/16	6 1/16	8 3/32	7 3/32	30 1/4	34 7/16	38%	33 3/4	32%	35	30 3/4	43 1/2	38 3/16	36 1/2	35 3/16	35%	31%
13	9 1/32	15 1/8	7 1/16	7 1/16	9/16	7 1/16	9 1/32	8 3/4	36%	40 1/16	45 1/4	39 1/4	38%	40 7/16	35 3/4	50 7/16	44 5/16	42 1/2	41 1/16	40%	36%
15	9 9/16	16 1/2	8 3/16	8 3/16	9/16	8 5/16	10 1/8	9 9/32	41 1/8	45 5/16	51 1/4	44%	43%	45 1/8	41	57 1/4	50 5/16	48%	47 7/16	46 1/2	42%
17	10 11/16	18 7/8	9 3/16	9 3/16	9/16	9 3/8	11 1/16	10 1/2	46 1/8	51 1/16	58 1/8	50	49%	51 1/4	46 1/4	64 1/16	56 5/16	54 1/4	53 3/16	52%	47%
19	11 1/2	20%	10 1/4	10 1/4	9/16	10 1/2	12	11 1/8	51 1/16	56 1/2	64 9/16	55 5/8	54%	56 11/16	51 3/8	70 7/8	62 1/4	60 1/16	58 7/8	57 1/16	53%
21	12 11/32	20 3/8	11 1/4	11 1/4	9/16	11 5/8	14 1/32	13 1/8	56 1/16	62 1/8	71 1/8	60%	60%	62 1/2	56 3/4	77 3/4	68 5/16	66	64 11/16	63 3/8	58 7/8

ARRANGEMENT 9 DRIVE CENTERS

MAXIMUM MOTOR		ARRANGEMENT 9 DRIVE CENTERS																				
		T-FRAMES		U-FRAMES		FRAME 56		FRAME 143-145		FRAME 182-184		FRAME 213-215		FRAME 254-256		FRAME 284-286		FRAME 324-326		FRAME 384-385		
		ODP & TEFC	ODP	TEFC	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
FAN SIZE	11	215T	215	215	14.7	16.8	14.7	16.8	15.8	17.8	16.5	18.6										
	13	256T	286U	284U	15	17.2	15	17.2	16	18.1	16.5	19	17.3	20	17.8	20.8						
	15	284T	286U	286U	17	19.2	17	19.2	18	20.1	18.5	21	19.3	22	19.8	22.8						
	17	324T	384U	384U	18.7	21	18.7	21	19.6	21.8	20.2	22.3	21	23.7	21.4	24.4	25.7	22.4	23	26.7		

FAN SIZE	R	S	T	U	V	W	J	J	LS WHEEL - AM WHEEL
13	22 1/2	17 1/2	11 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
15	26 1/2	19 1/2	13 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
17	29 1/2	21 1/2	15 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
19	33 1/2	23 1/2	17 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
21	36 1/2	26 1/2	20 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

+ FOR TYPE "C" SPARK RESISTANT CONSTRUCTION 200°F. AND ABOVE, ADD 3/8" TO DIMENSIONS SHOWN.

FAN SIZE	R	S	T	U	V	W	J	J	LS WHEEL - AM WHEEL
11	8 3/2	10 1/2	7 1/2	4 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
13	9 3/2	11 1/2	8 1/2	5 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
15	10 1/2	12 1/2	9 1/2	6 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
17	11 1/2	13 1/2	10 1/2	7 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
19	12 1/2	14 1/2	11 1/2	8 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
21	13 1/2	15 1/2	12 1/2	9 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

FAN SIZE	MAXIMUM MOTOR												ARRANGEMENT 9 DRIVE CENTERS											
	T-FRAMES		U-FRAMES		FRAME 56		FRAME 143-145		FRAME 182-184		FRAME 213-215		FRAME 254-256		FRAME 284-286		FRAME 324-326		FRAME 354-365					
	ODP & TEFC	TEFC	ODP	TEFC	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.				
	215T	215	215	215	14.7	16.8	14.7	16.8	15.8	17.8	16.5	18.6												
11	215T	215	215	215	14.7	16.8	14.7	16.8	15.8	17.8	16.5	18.6												
13	256T	286U	286U	284U	15	17.2	15	17.2	16	18.1	16.5	19	17.3	20	17.8	20.8								
15	284T	286U	286U	286U	17	19.2	17	19.2	18	20.1	18.5	21	19.3	22	19.8	22.8								
17	324T	364U	364U	364U	18.7	21	18.7	21	19.6	21.8	20.2	22.3	21	23.7	21.4	24.4	22.4	25.7	23	26.7				
19	326T	365U	365U	365U	20.6	22.9	20.6	22.9	21.5	23.7	22	24.6	22.9	25.6	23.3	26.3	24.1	27.6	24.8	28.6				
21	326T	365U	365U	365U	22.8	25.1	22.8	25.1	23.6	25.9	24.2	26.7	24.9	27.8	25.3	28.4	26.5	29.9	26.8	30.7				

PERFORMANCE											
MOTOR DATA											
ITEM NO.	IDENTIFICATION	ARRG'T	NO.	FAN SIZE	FIG. NO.	WHL. TYPE	CL	C.F.M.	O.V.	S.P.	R.P.M.
1	SN195978	9SR	1	13	5	LS	3	2250	2445	2.5	1545
	Tag: Arrtech Job IJ-120							Den. .027	Elv. up to 7000'		

OPTIONAL ACCESSORIES											
ITEM NO.	SLIDE BASE 7-2-94	MTR PULLEY/FAN PULLEY	BELTS	CENTER	MOTOR POS.	VIBR. BASE TYPE	PADS TYPE	OPTIONAL ACCESS.	MOTOR DATA		
1	7				9SR			A, E, D, L, Q, H			
								R, G, S, P, W, F			

CUSTOMER											
Arrtech Environmental Systems											
Tulsa, Ok.											
P.O.# IJ120-0023											

NOTES


- Dwg. 16-0-1026 must accompany customer dwg.
- Flanged outlet is not std. on DB & BAD units. When flanged outlet (punched) is required on DB (Fig. 7 & 17) or BAD (Fig. 8 & 18) units, See Dwg. 16-0-1027 for

- A = FLANGED INLET #16-0-1026
- B = PUNCHED INLET UNPUNCHED □
- C = CLEANOUT DOOR - BOLTED #16-0-1026
- D = CLEANOUT DOOR - QUICK CLAMP #16-0-1026
- E = CLEANOUT DOOR - PLUG TYPE @9:00 #16-0-1026
- F = DRAIN OPENING #16-0-1026 w/plug
- G = SPECIAL FINISH - SEE NOTES
- H = SHAFT SEAL
- J = SPARK RESIST. CONST. 'C'
- K = HEAVY DUTY HOUSING
- L = COOLING WHEEL
- M = INLET SCREEN
- N = HEAVY DUTY L.S. WHEEL
- P = BELT GUARD
- Q = SHAFT/BEARING GUARD
- R = EXT. GREASE FITTINGS
- S = MOUNT MOTOR & DRIVES
- T = INLET BOX #16-0-1061
- U = INLET BOX DAMPER #16-0-1062
- W = Insulation 4" thick

NO.	BASE 7-2-94	MTR PULLEY/FAN PULLEY	BELTS	CENTER	POS.	BASE TYPE	TYPE	ACCESS.
1	7				9SR			A, E, D, L, Q, H, R, G, S, P, W, F

NOTES

- Dwg. 16-0-1026 must accompany customer dwg.
 - ⊗ Flanged outlet is not std. on DB & BAD units. When flanged outlet (punched) is required on DB (Fig. 7 & 17) or BAD (Fig. 8 & 18) units, See Dwg. 16-0-1027 for details of outlet flange extension.
 - ▲ When vibration or unitary base is furnished disregard foundation plan shown above and refer to vibration or unitary base Dwg.
Refer to order acknowledgment for shipping details.
- Special hi temp, silicon aluminum on pedestal only.
- CBC to furnish motor, belt guard, c/s drive and variable speed drive for motor.

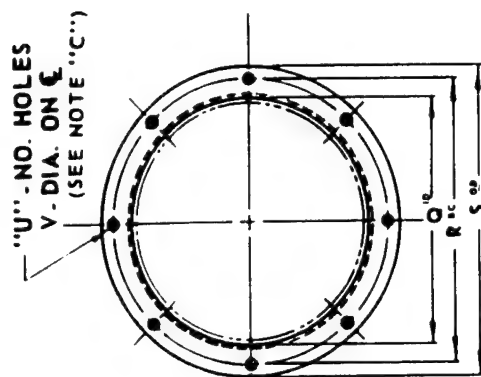
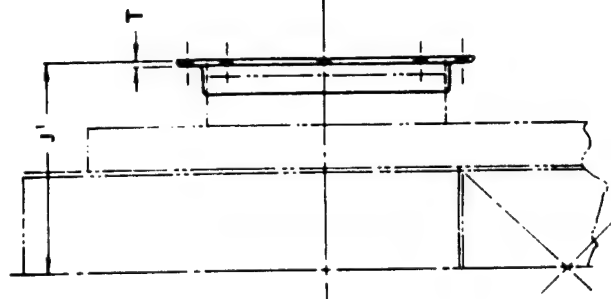
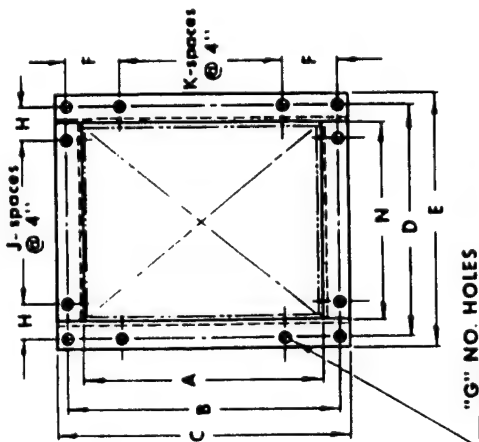
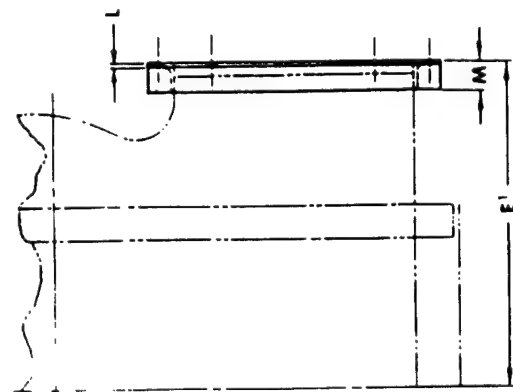
CUSTOMER		Arrtech Environmental Systems	
		Tulsa, Ok.	P.O.# IJ120-0023
JOB NAME			
LOCATION			
ARCH./ENGINEER		CITY	
<p align="center"> DESIGN 16A INDUSTRIAL FANS ARRANGEMENT NO. 1 & 9 SISW CLASSES II & III FIXED DISCHARGE — SIZES 11 THRU 21  1675 GLEN ELLYN ROAD, GLENDALE HEIGHTS, IL 60139 </p>			
FURNISHED FOR SALES PURPOSE - DIMENSIONS NOT CERTIFIED BY CBC	DATE	SUBMITTED BY	SALES OFFICE
DRAWING CERTIFIED BY CBC - FURNISHED FOR APPROVAL - NOT RELEASED FOR PRODUCTION	DATE	CBC ENGINEER	SO#
DRAWING CERTIFIED BY CBC - APPROVAL NOT REQUIRED - RELEASED FOR PRODUCTION	DATE	CBC ENGINEER	DWG #
	11/11/94	HS/SC	195978-1

*WHEEL TYPES: LS = Long Shavings, AM = Air Material

DIMENSION TOLERANCES ± 1/8 - DO NOT USE FOR GENERAL CONSTRUCTION UNLESS CERTIFIED BY C.B.C. ENG. DEPT.

Form 16-0-1023H

Note: Outlet Flange is furnished as Std. on all D/16A Fans.



OUTLET FLANGE PUNCHING

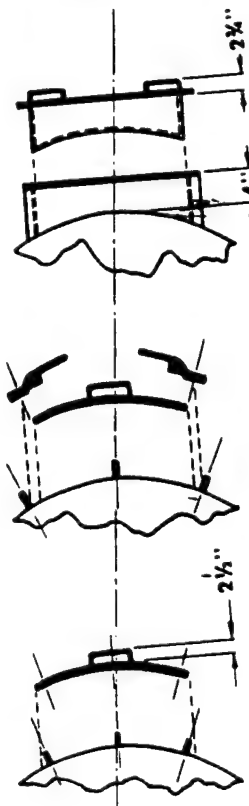
All Sizes Except DB & BAD Sizes 23 - 45
See 16-0-1021 (BAD), 16-0-1022 (DB)

NOTE D

FAN SIZE	OUTLET FLANGE (DIMENSIONS — INCHES)															INLET FLANGE (DIM. — INCHES)									
	A	B	C	D	E	E'	F	G	H	J	K	L	M	N	P	J'		Q	R	S*	T GA.	U	V		
																LS	AM								
11	10-5/8	12-3/8	13-5/8	11-1/16	12-5/16	15	4-3/16	10	5-17/32	0	1	3/16	1-1/2	9-5/16	1/2	8-19/32	NA	11-1/8	12-1/2	13-5/8	1/8	8	3/8		
13	12-5/8	14-3/8	15-5/8	12-13/16	14-1/16	17-7/16	5-3/16	12	4-13/32	1	1	1/2	1-1/2	11-1/16	1/2	9-23/32	1/2	13-3/16	14-13/16	16-3/16	1/8	12	7/16		
15	14-1/2	16-1/4	17-1/2	14-1/2	15-3/4	19-7/8	4-1/8	14	5-1/4	1	2	1/2	1-1/2	12-3/4	1/2	10-5/8	1/2	15-3/16	16-13/16	18-3/16	1/8	16	1/2		
17	16-7/16	18-3/16	19-7/16	16-1/8	17-3/8	22-1/4	5-3/32	16	4-11/16	2	2	1/2	1-1/2	14-3/8	1/2	11-9/16	1/2	17-3/16	19-1/8	20-3/16	3/16	16	1/2		
19	18-1/4	20	21-1/4	17-3/4	19	24-11/16	4	18	4-7/8	2	3	1/2	1-1/2	16	1/2	12-1/2	1/2	19-3/16	21-1/8	22-3/16	1/2	16	1/2		
21	20-3/16	21-15/16	23-3/16	19-7/16	20-11/16	27-1/8	4-31/32	20	3-23/32	3	3	1/2	1-1/2	17-11/16	1/2	14-17/32	1/2	21-3/16	23-1/8	24-3/16	1/2	20	1/2		
23	22-1/8	24-3/8	26-1/8	21-9/16	23-5/16	30-1/8	4-3/16	22	4-25/32	3	4	1/2	2	19-5/16	5/8	16-5/32	5/8	23-3/16	25-1/8	26-3/16	1/2	20	7/16		
26	24-15/16	27-3/16	28-15/16	24-7/16	26-3/16	33-11/16	5-19/32	24	4-7/32	4	4	1/2	2	22-3/16	1/2	17-23/32	1/2	26-3/16	28-1/2	30-3/16	1/2	24	9/16		
29	27-3/4	30	31-3/4	26-3/4	28-1/2	37-1/2	5	26	5-3/8	4	5	1/2	2	24-1/2	1/2	18-23/32	1/2	29-3/16	31-1/2	33-3/16	1/2	24	1/2		
33	31-3/4	34	35-3/4	29-15/16	31-11/16	42-7/16	5	30	4-31/32	5	6	1/2	2	27-11/16	1/2	20-13/32	1/2	33-3/16	35-3/8	37-3/16	1/2	16	9/16		

13	12-5/8	14-3/8	15-5/8	12-13/16	14-1/16	17-7/16	5-3/16	12	4-13/32	1	1	↑	↑	↑	11-1/16	↑	9-23/32	↑	13-3/16	14-13/16	16-3/16	1/8	12	7/16
15	14-1/2	16-1/4	17-1/2	14-1/2	15-3/4	19-7/8	4-1/8	14	5-1/4	1	2	↑	↑	↑	12-3/4	↑	10-5/8	↑	15-3/16	16-13/16	18-3/16	1/8	16	↑
17	16-7/16	18-3/16	19-7/16	16-1/8	17-3/8	22-1/4	5-3/32	16	4-1/16	2	2	↑	↑	↑	14-3/8	↑	11-9/16	↑	17-3/16	19-1/8	20-3/16	3/16	16	↑
19	18-1/4	20	21-1/4	17-3/4	19	24-11/16	4	18	4-7/8	2	3	↑	↑	↑	16	↑	12-1/2	↑	19-3/16	21-1/8	22-3/16	↑	16	↑
21	20-3/16	21-15/16	23-3/16	19-7/16	20-11/16	27-1/8	4-31/32	20	3-23/32	3	3	↑	↑	↑	17-11/16	↑	14-17/32	1/2	21-3/16	23-1/8	24-3/16	↑	20	↑
23	22-1/8	24-3/8	26-1/8	21-9/16	23-5/16	30-1/8	4-3/16	22	4-25/32	3	4	↑	↑	↑	19-5/16	↑	16-5/32	5/8	23-3/16	25-1/8	26-3/16	↑	20	7/16
26	24-15/16	27-3/16	28-15/16	24-7/16	26-3/16	33-11/16	5-19/32	24	4-7/32	4	4	↑	↑	↑	22-3/16	↑	17-23/32	↑	26-3/16	28-1/2	30-3/16	↑	24	9/16
29	27-3/4	30	31-3/4	26-3/4	28-1/2	37-1/2	5	26	5-3/8	4	5	↑	↑	↑	24-1/2	↑	18-23/32	↑	29-3/16	31-1/2	33-3/16	↑	24	↑
33	31-3/4	34	35-3/4	29-15/16	31-11/16	42-7/16	5	30	4-31/32	5	6	↑	↑	↑	27-11/16	↑	20-13/32	↑	33-3/16	35-3/8	37-3/16	↑	16	9/16
37	35-1/2	37-3/4	39-1/2	33-1/4	35	47-5/16	4-7/8	34	4-5/8	6	7	↑	↑	↑	31	↑	23-11/16	↑	37-3/16	39-1/2	41-3/16	↑	↑	5/8
41	39-1/4	42	44-1/4	37-1/4	39-1/2	52-9/16	5	38	4-5/8	7	8	↑	↑	↑	34-1/2	↑	25	↑	41-3/16	43-7/8	45-3/16	↑	↑	3/4
45	43-1/16	45-13/16	48-1/16	40-1/2	42-3/4	57-1/2	4-29/32	42	4-1/4	8	9	↑	↑	↑	37-3/4	↑	—	5/8	45-3/16	47-7/8	49-3/16	3/16	16	3/4

CLEANOUT DOORS



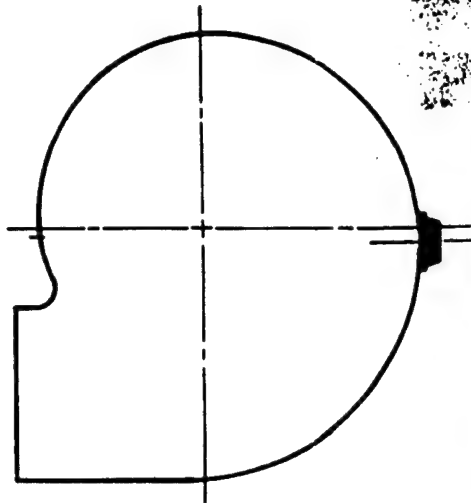
BOLTED TYPE CLAMP TYPE PLUG TYPE

Cleanout door locations must be specified on order by "o'clock" position. These locations are as viewed from drive side and doors are symmetrical on o'clock center-line.

On units with horizontal split housings 3:00 and 9:00 o'clock positions are prohibited.

- NOTES:
- A. OUTLET FLANGES ARE FURNISHED PUNCHED AS STANDARD
 - B. INLET FLANGES ARE FURNISHED PUNCHED AS STANDARD
 - C. FOR TYPE 'C' SPARK RESIST. CONSTRUCTION USE VALUES

DRAIN OPENING



DRAIN CONNECTION IS 1 1/2" NPT HALF COUPLING AND IS LOCATED AT LOWEST POINT ON SCROLL.



BOLTED TYPE CLAMP TYPE PLUG TYPE

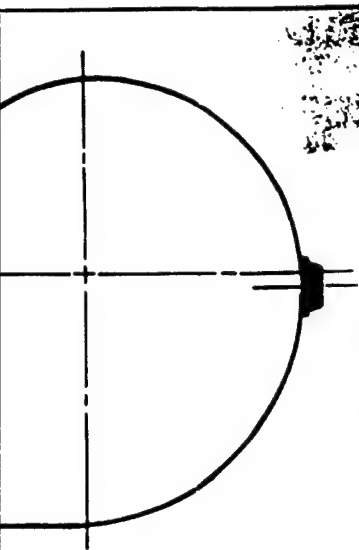
Cleanout door locations must be specified on order by "o'clock" position. These locations are as viewed from drive side and doors are symmetrical on o'clock centerline.

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NOTES:

- A. OUTLET FLANGES ARE FURNISHED PUNCHED AS STANDARD
 - B. INLET FLANGES ARE FURNISHED PUNCHED AS STANDARD
 - C. FOR TYPE 'C' SPARK RESIST. CONSTRUCTION USE VALUES FOR TYPE L.S. WHEEL
 - D. FOR TYPE 'C' SPARK RESISTANT CONSTRUCTION AT 200° F AND ABOVE, ADD 3/8" TO DIMENSION SHOWN.
- FAN SIZES 11-15 ONLY

17	10 x 10	10 x 10	10 x 10	12
19	10 x 10	10 x 10	10 x 10	12
21	10 x 10	10 x 10	10 x 10	12
23	14 x 14	10 x 10	10 x 10	12
26	14 x 14	10 x 16	10 x 16	18
29	14 x 14	16 x 16	16 x 16	22
33	20 x 20	16 x 16	16 x 16	22
37, 41, 45	20 x 20	22 x 22	22 x 22	22



DRAIN CONNECTION IS 1 1/2" NPT HALF COUPLING AND IS LOCATED AT LOWEST POINT ON SCROLL.

**DESIGN 16A
ACCESSORIES**

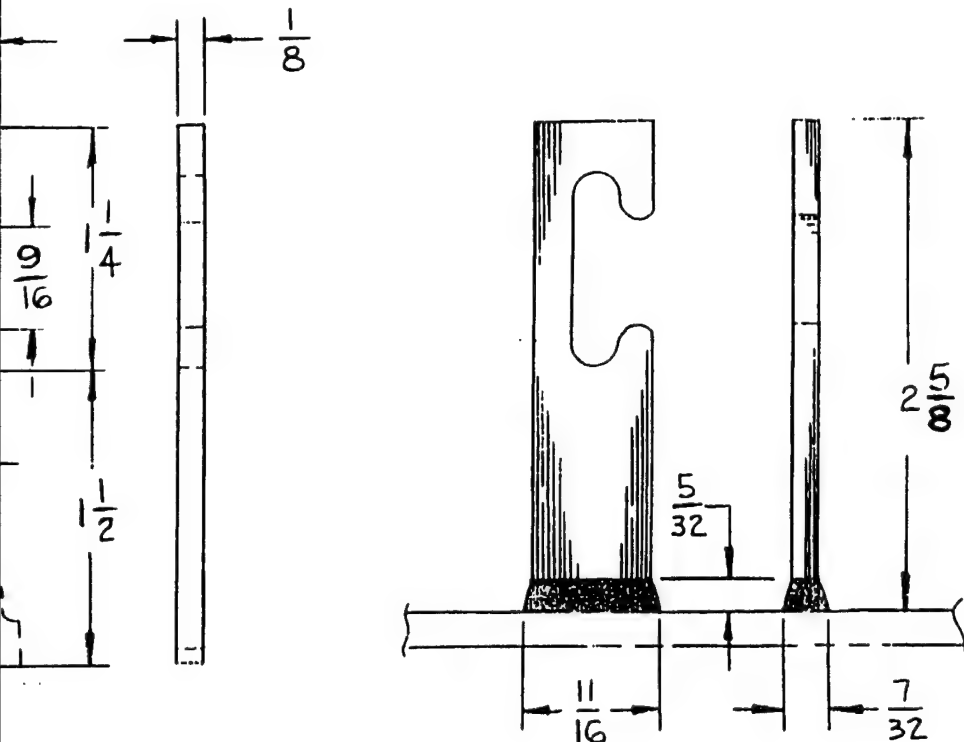


1675 GLEN ELLYN ROAD, GLENDALE HEIGHTS, IL 60139

DIMENSION TOLERANCE ± 1/8

16-0-1026S

3



INSULATION STUD



CHICAGO BLOWER CORPORATION
1675 GLEN ELLYN ROAD, GLENDALE HEIGHTS, ILL. 60137
PHONE A C 312 858-2600

FURNISHED FOR SALES PURPOSES-DIMENSIONS NOT CERTIFIED BY CBC	DATE	SUBMITTED BY	SALES OFFICE
	DATE	CBC ENGINEER	SO#
	DATE	CBC ENGINEER	DWG. NO.
DRAWING CERTIFIED BY CBC - FURNISHED FOR APPROVAL - NOT RE- LEASED FOR PRODUCTION	11/11/94	HS/jc	195978
DRAWING CERTIFIED BY CBC - APPROVAL NOT REQUIRED - RELEASED FOR PRODUCTION			195978-2

PROPANE DELIVERY SYSTEM

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRI</u>
9508-112 (SHEET 1)	1	10/13/95	SITE PLAN
9508-112 (SHEET 2)	-	2/27/95	PIPING DIAGRAM
9508-112 (SHEET 3)	-	9/18/95	BILL OF MATERIA

(1)

PROPANE DELIVERY SYSTEM DRAWINGS

VERY SYSTEM DRAWINGS

DRAWING DESCRIPTION

ITE PLAN
PIPING DIAGRAM
BILL OF MATERIALS & GENERAL NOTES

(2)

Suburban Propane

WHIPPANY

ROY WESTON, INC. - WEST CHESTER, PA.
ALABAMA ARMY AMMUNITION PLANT - ALPINE, AL

<u>DRAWING</u>	<u>NUMBER</u>	<u>SHEET</u>	<u>REV.</u>
SITE PLAN	9508-112	1	OF 3
PIPING DIAGRAM	9508-112	2	OF 3
BILL OF MATERIAL & GENERAL NOTES	9508-112	3	OF 3

①

**ban
ane**

NEW JERSEY

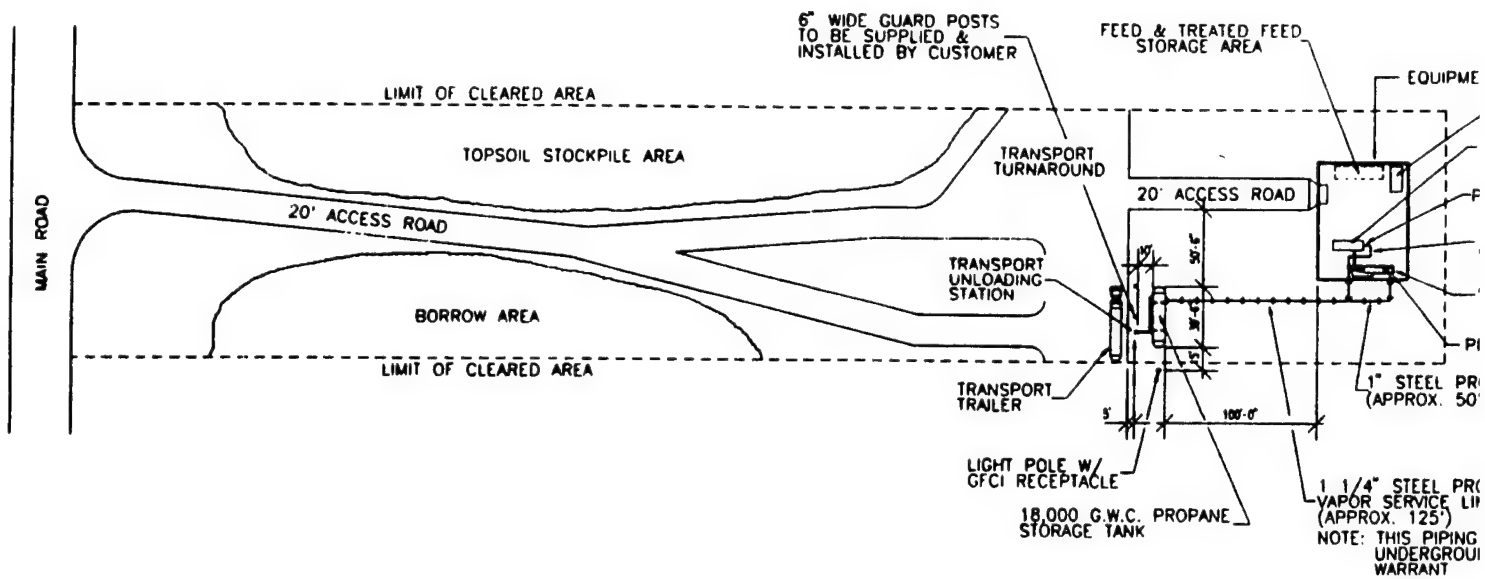
**ESTER, PA.
T - ALPINE, AL**

MBER SHEET REV.

9-112 1 OF 3

9-112 2 OF 3

9-112 3 OF 3



SITE PLAN

SCALE: 1" = 60'-0"

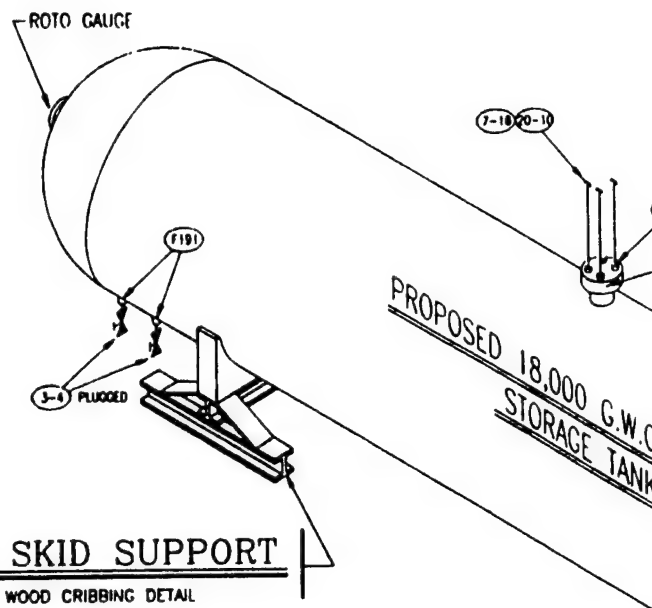
1

BREAKAWAY
STANCHION DETAIL
SCALE: NONE

NOTE: GUARD POSTS TO BE
LOCATED 4'-6" ON
CENTER OF EACH OTHER

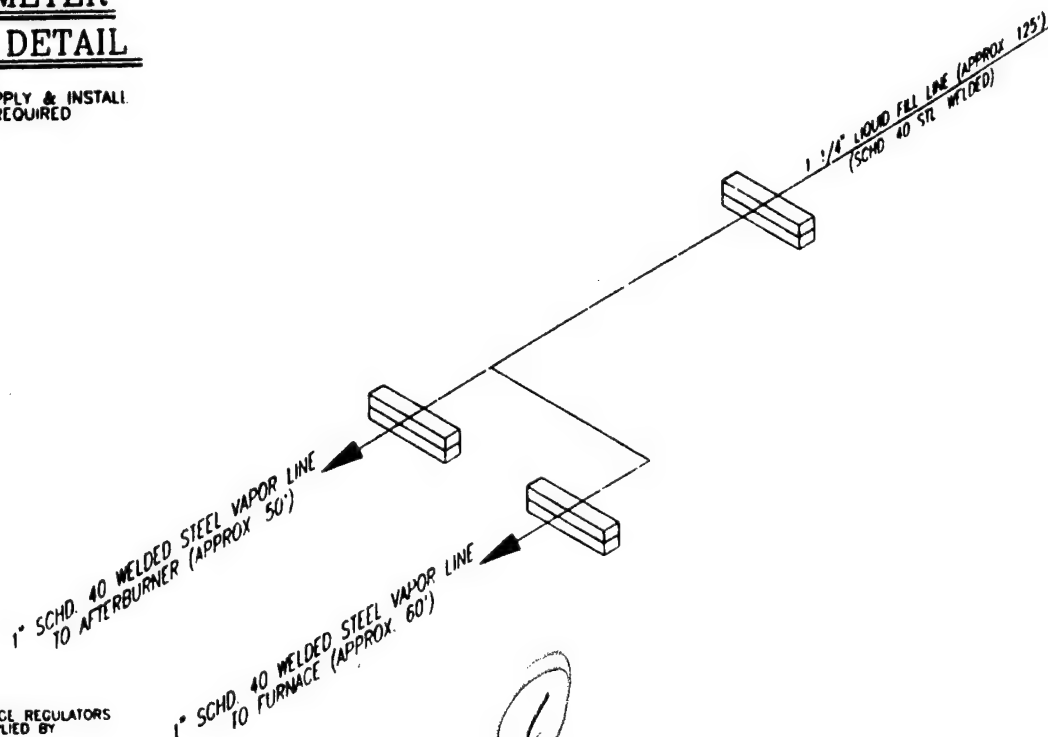
TYP. 6" DIAMETER
GUARD POST DETAIL

SCALE: NONE
NOTE: CUSTOMER TO SUPPLY & INSTALL
GUARD POSTS IF REQUIRED



TANK SKID SUPPORT

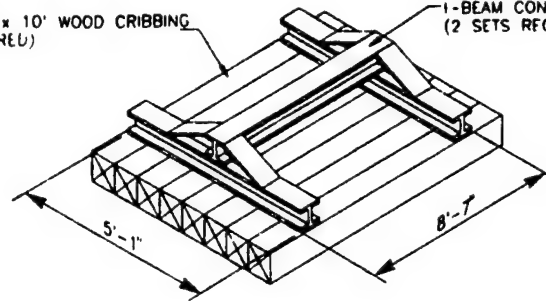
SEE WOOD CRIBBING DETAIL



NOTE: SECOND STAGE REGULATORS
TO BE SUPPLIED BY
CUSTOMER

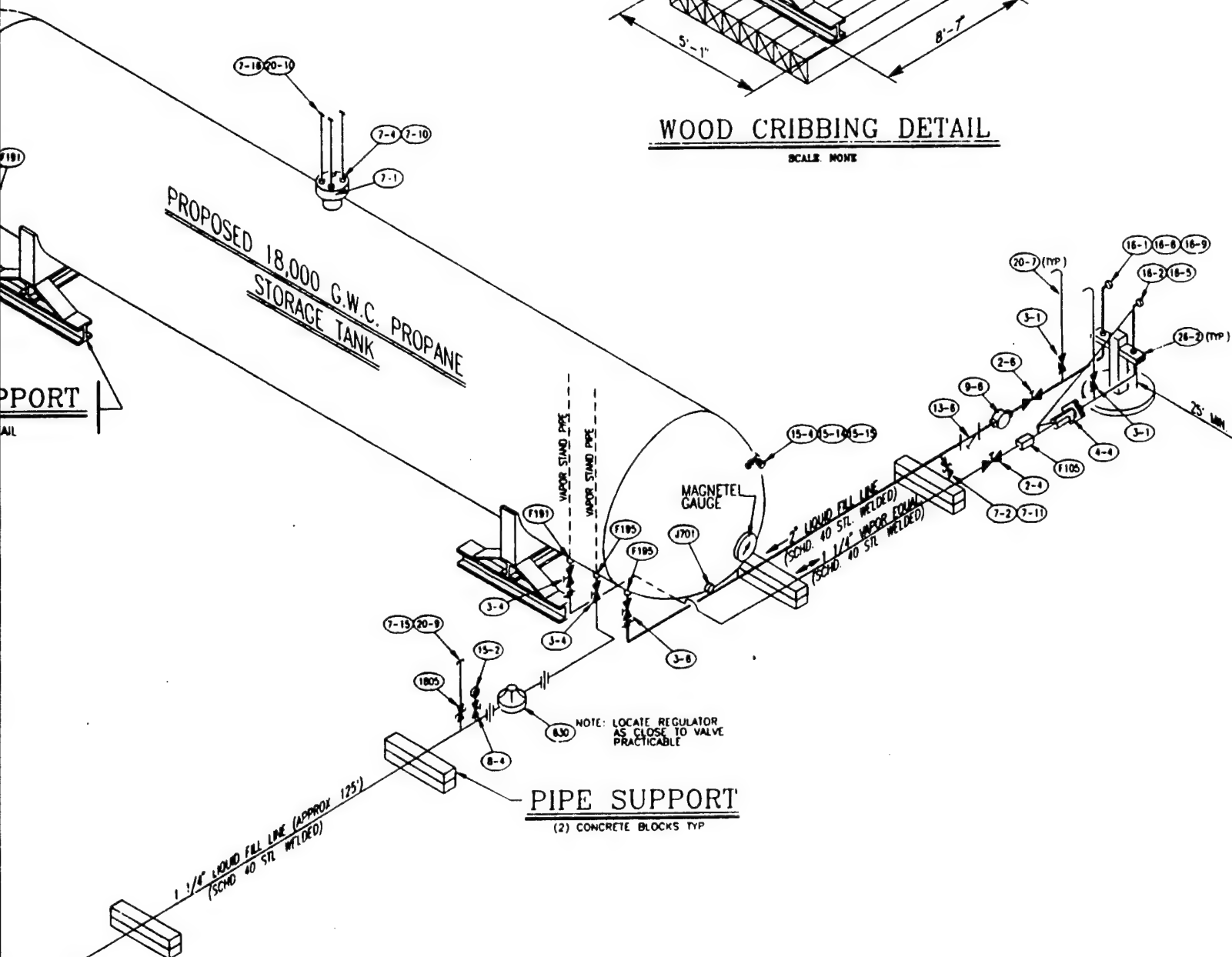
(8) 8' x 8' x 10' WOOD CRIBBING
(16 REQUIRED)

STEEL TANK SKID
1-BEAM CONSTRUCTION
(2 SETS REQUIRED)



WOOD CRIBBING DETAIL

SCALE: NONE



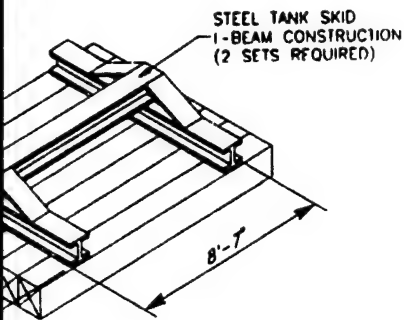
PIPING DIAGRAM

SCALE: NONE

NOTES

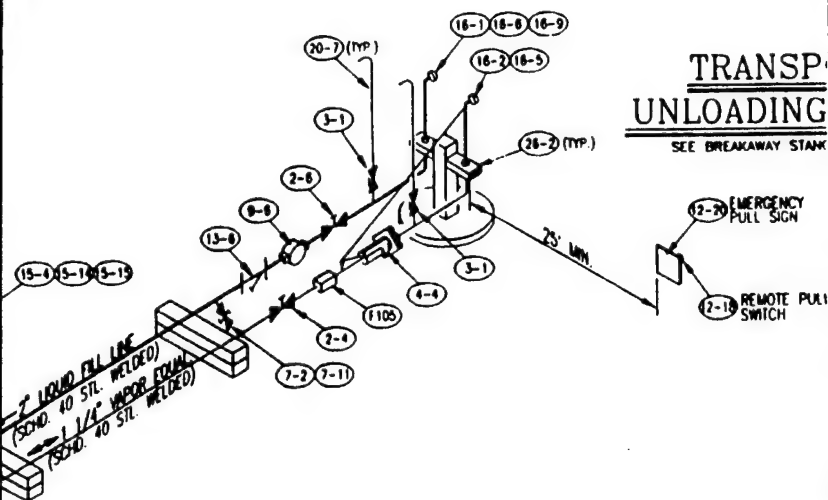
- 1) FOR ACTUAL LOCATION OF PROPANE STORAGE TANK, VAPORIZERS & TRANSPORT UNLOADING RISER SEE SITE PLAN DRAWING NO 9508-112 SHEET 1 OF 3
- 2) SEE BILL OF MATERIALS DRWG NO 9508-112 SH. 3 OF 3 FOR ALL MATERIAL SPECIFICATIONS & GENERAL NOTES

2



RIBBING DETAIL

SCALE: NONE



Suburban
Propane

SUBURBAN PROPANE - WHIPPANY, N.J.	YAPACOLA	REVISED
PIPING DIAGRAM	2-27-93	
ROY WESTON, INC. - WEST CHESTER, PA.	1/2" = 1"	
ALABAMA ARMY AMMUNITION PLANT - ALPINE, AL	CHECKED	
DWG. NO. 9508-112 Sheet 2 of 3		

3

STEEL PIPE - GENERAL NOTES:

1) PIPE SPECIFICATIONS:

- BLACK WELDED & SEAMLESS PIPE ANSI/ASTM A53
- SEAMLESS CARBON STEEL PIPE ANSI/ASTM A106
- BLACK WELDED & SEAMLESS STEEL PIPE ANSI/ASTM A120

- 2) ALL ABOVEGROUND PIPE SHALL BE PRIMED AND PAINTED.
- 3) ALL UNDERGROUND PIPE SHALL BE X-TRU COATED OR EQUIVALENTLY WRAPPED (THIN FILM EPOXY-LI. GREEN)
- 4) ALL UNDERGROUND PIPING SHALL BE ELECTRICALLY ISOLATED AND CATHODICALLY PROTECTED WITH HIGH POTENTIAL MAGNESIUM ANODES
- 5) ALL UNDERGROUND PIPE JOINTS SHALL BE MASTIC COATED AND/OR WRAPPED WITH UNDERGROUND TAPE WRAP.
- 6) ALL ABOVEGROUND PIPE SHALL BE SECURELY SUPPORTED AND PROTECTED FROM PHYSICAL DAMAGE. SPACINGS OF A/G PIPE SUPPORTS SHALL NOT EXCEED THE FOLLOWING.

<u>STEEL PIPE SIZE</u> (INCHES)	<u>SPACING OF SUPPORTS</u> (FEET)
1/2"	6'
3/4" OR 1"	8'
1 1/4" OR LARGER (HORIZONTAL)	10'
1 1/4" OR LARGER (VERTICAL)	EVERY FLOOR LEVEL

- 7) JOINT COMPOUND (PIPE DOPE) FOR ALL THREADED JOINTS SHALL BE LABELED FOR USE ON LP GAS AND LIQUID.
- 8) ALL HIGH AND LOW PRESSURE FLANGE GASKETS SHALL BE ASBESTOS FIRE RATED OR WHEN REQUIRED NON ASBESTOS "GARLOCK" TYPE. FLANGED GASKETS SHALL BE RATED FOR THE GIVEN PRESSURE OF THE PIPELINE AND OR VALVE FLANGE.
- 9) ALL PIPE WELDING SHALL MEET WITH THE LATEST A.P.I. STANDARD 1104.
- 10) ALL HIGH PRESSURE PIPING SHALL BE SCHEDULE 80 WHEN THREADED OR SCHEDULE 40 OR 80 WHEN WELDED.
- 11) ALL LOW PRESSURE PIPING SHALL BE AT LEAST SCHEDULE 40 WHEN THREADED OR WELDED.
- 12) ALL HIGH PRESSURE FITTINGS SHALL BE FORGED STEEL RATED 600# OR GREATER. CAST IRON PIPE FITTINGS (ELLS, TEES, CROSSES, UNIONS, FLANGES OR PLUGS) SHALL NOT BE USED.
- 13) ALL LOW PRESSURE FITTINGS SHALL BE RATED 250# OR GREATER MADE OF MALLEABLE IRON OR EQUIVALENT. CAST IRON PIPE FITTINGS (ELLS, TEES, CROSSES, UNIONS, FLANGES OR PLUGS) SHALL NOT BE USED.
- 14) PRIOR TO PRESSURE TEST, PIPE SHALL BE CLEANED OF ALL FOREIGN MATERIAL.
- 15) ALL NEW PIPING SHALL BE PRESSURE TESTED AFTER CONNECTIONS HAVE BEEN COMPLETED. PRESSURIZATION OF HIGH PRESSURE LINES WITH AIR OR NITROGEN TO 350 P.S.I.G. ALL LOW PRESSURE LINES WILL BE TESTED TO 50 P.S.I.G. HOLD PRESSURE ON SYSTEM FOR MINIMUM 15 MINUTES WHILE CHECKING ALL WELDS, THREADED JOINTS, VALVE PACKING JOINTS, ETC. WITH SOAP CHECK.
- 16) ALL PIPE LEAVING TANK (MANWAY AND/OR OPENINGS) AREA SHALL INCORPORATE SWING JOINT (ELL) TO RELIEVE PIPE STRESSES ON TANK FITTINGS. ADDITIONALLY, ANY PIPE SUBJECT TO MOVEMENT WITH RELATION TO ANY FIXED OBJECT MUST INCORPORATE SWING JOINT ELLS
- 17) SUPPLY PIPE REDUCERS WHERE NECESSARY. (ONE PIECE CONCENTRIC WELD OR THREADED BUSHING TYPE)
- 18) SUPPLY UNIONS WHERE NECESSARY FOR EASY REMOVAL OF EQUIPMENT (TAKE SPECIAL NOTE OF WHERE INSULATED UNIONS HAVE BEEN SPECIFIED)
- 19) 6" DIAMETER CONCRETE FILLED SCHEDULE 40 STEEL GUARD POSTS TO BE INSTALLED WHERE NECESSARY (SUPPLIED BY CUSTOMER)
- 20) INSTALLATION TO MEET THE FOLLOWING CODE REQUIREMENTS:
N.F.P.A. #58 AND N.F.P.A. PAMPHLET #70 COVERING
HAZARDOUS LOCATIONS CLASSIFICATIONS

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BILL OF MATERIAL

SYMBOL	QTY	DESCRIPTION	INLET/OUTLET	PIPE SIZE	MANUFACTURER / PART NO
2-3	2	BALL VALVE	UNION ENDS	1"	MARPAC CS-B790-TT
2-4	1	BALL VALVE	UNION ENDS	1 1/4"	MARPAC CS-B790-TT
2-6	1	BALL VALVE	UNION ENDS	2"	MARPAC CS-B790-TT
3-1	2	GLOBE VALVE	FNPT/FNPT	1/2"	FISHER N301-04
3-4	4	GLOBE VALVE	FNPT/FNPT	1 1/4"	FISHER N310-10
3-6	1	GLOBE VALVE	FNPT/FNPT	2"	FISHER N310-18
4-4	1	EMERGENCY VALVE	FNPT/FNPT	1 1/4"	REGO 7781AF
F191	3	EXCESS FLOW VALVE	WNPT/FNPT	2" x 1 1/4"	FISHER F191-105GPM
F195	2	EXCESS FLOW VALVE	WNPT	3" x 2"	FISHER F195-280GPM
7-1	1	MULTIPOINT RELIEF VALVE	FLANGE	3"	REGO A8560
7-2	1	HYDRO. RELIEF VALVE	WNPT	1/2"	FISHER H144
7-4	3	TANK RELIEF VALVE	WNPT	2"	REGO A3149MG
7-10	3	PIPEWAY ADAPTOR	-	-	FISHER P104-24
7-11	1	RAIN CAP	-	1/2"	FISHER P208
7-15	1	RAIN CAP	-	2"	P770 - 2 3/8"
7-16	3	RAIN CAP	-	3"	P770 - 3 1/2"
8-4	1	NEEDLE VALVE	WNPT/FNPT	1/4"	V335
9-6	1	BACKCHECK VALVE	FNPT/FNPT	2"	REGO A7784
12-18	1	EMERG. PULL TO CLOSE	-	-	FISHER P184B W/ CABLE
12-20	1	EMERG. PULL SIGN	-	-	P-81
13-8	1	STRAINER	FNPT/FNPT	2"	PAGET PG200 (W280-18)
15-2	2	PRESSURE GAUGE (0-300#)	-	1/4"	FISHER J501 (GS30)
15-4	1	PRESSURE GAUGE (0-300#)	-	1/4"	FISHER J508 (GS300)
15-14	1	VENT/PRESSURE VALVE	WNPT/FNPT	3/4" x 1/4"	FISHER J415
15-15	1	SPT VENT	FNPT	1/4"	FISHER J400
16-1	1	ACME ADAPTOR	MACME/WNPT	3 1/4" x 2"	FISHER 503-16
16-2	1	ACME ADAPTOR	MACME/WNPT	1 3/4" x 1"	FISHER W218
16-5	1	BRASS CAP W/ CHAIN	FACME	1 3/4"	FISHER M229
16-6	1	STEEL CAP	FACME	3 1/4"	FISHER M443
16-9	1	CHAIN W/ HOOKS	-	-	FISHER P187
20-9	1	STAND PIPE	SCHD.40 GALV	2" x 7'	BY CONTRACTOR
20-10	3	STAND PIPE	SCHD.40 GALV	3" x 7'	BY CONTRACTOR
1805	1	RELIEF VALVE	FNPT/FNPT	2"	FISHER 1805-52
26-2	2	BREAKAWAY EAR	-	-	-
27-6	2	INSULATED UNION	FNPT/FNPT	2"	3000# (HIGH PRESSURE)
J701	1	6" THERMOMETER	WNPT	1/2"	FISHER J701
630	2	REGULATOR	FNPT/FNPT	2"	FISHER 630-104/78



DATE	9/18/95
SCALE	NONE
CHECKED	

SUBURBAN PROPANE - WHIPPANY, N.J.
BILL OF MATERIALS
 ROY WESTON, INC. - WEST CHESTER, PA.
 ALABAMA ARMY AMMUNITION PLANT - ALPINE, AL.
 JWG.NO. 9508-112 Sheet 3 of 3

②

MISCELLANEOUS HGD SYSTEM EQ

<u>DRAWING NO.:</u>	<u>REV. NO.:</u>	<u>DRAWING DATE</u>	<u>DRAWING DESCRIPTION</u>
400	1	8/3/96	HGD SYSTEM: GENER
401	1	7/25/96	HGD SYSTEM: SECTIO
1000	-	8/8/95	STACK MODIFICATION TESTING
1001	2	5/2/96	HGD SYSTEM: PROCE
1002	2	5/10/96	HGD SYSTEM: PIPING
C100	3	1/10/96	HGD SYSTEM: SITE L
C2000	3	9/6/96	HGD SYSTEM: OVERA
C2001	2	9/6/96	HGD SYSTEM: OVERA

①

HGD SYSTEM EQUIPMENT

DRAWING DESCRIPTION

HGD SYSTEM: GENERAL ARRANGEMENT PLAN

HGD SYSTEM: SECTIONS & DETAILS

STACK MODIFICATION TO SUPPORT EMISSIONS
TESTING

HGD SYSTEM: PROCESS FLOW DIAGRAM

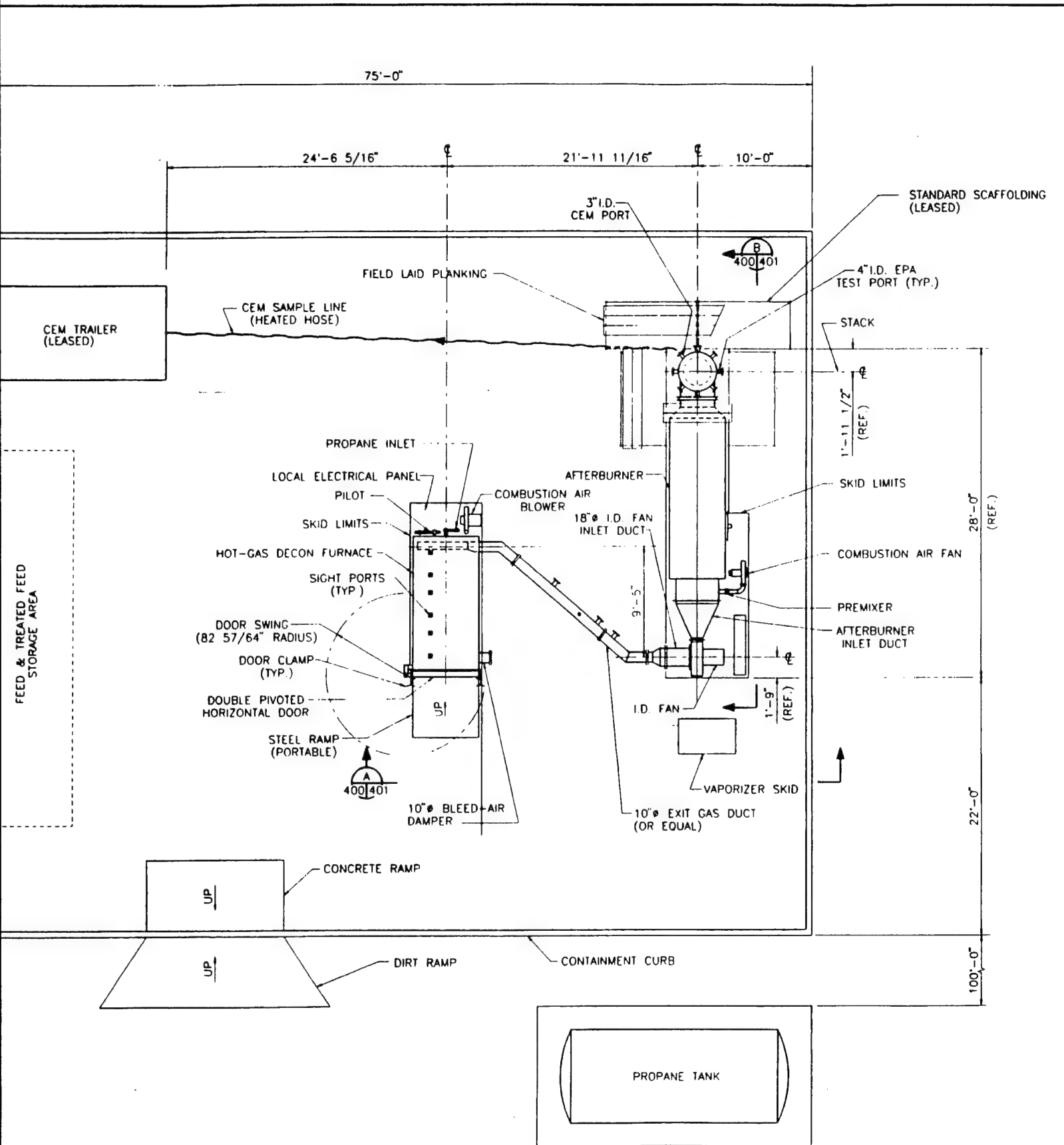
HGD SYSTEM: PIPING & INSTRUMENTATION DIAGRAM

HGD SYSTEM: SITE LAYOUT

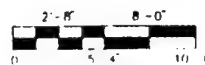
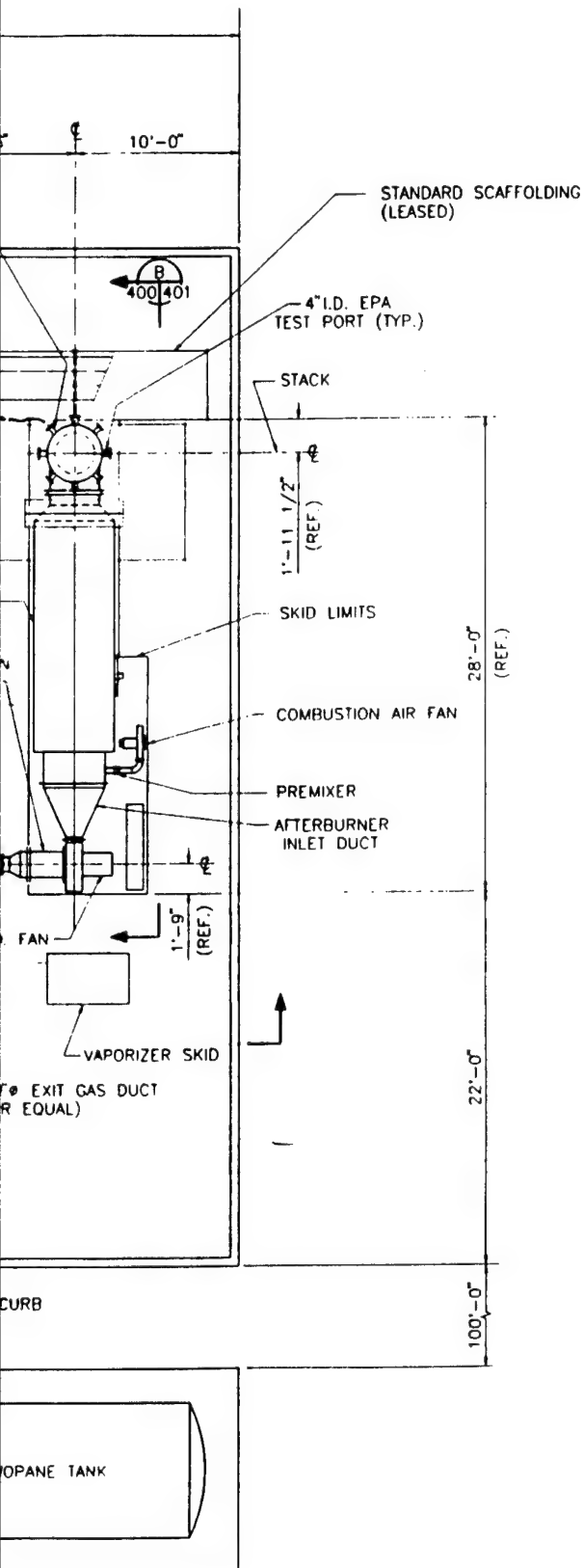
HGD SYSTEM: OVERALL SITE LAYOUT @ ALAAP

HGD SYSTEM: OVERALL SITE LAYOUT: DETAIL A

2



HOT-GAS DECONTAMINATION SYSTEM ALAP ALPINE, ALABAMA WESTON <small>ENGINEERS ARCHITECTS</small> <small>WESTON CHESTER</small>	CHECKED: <i>Ullrich</i>	DATE: 8/3/96	CLIENT APPROVALS:	DATE:
	DES. ENG.			
	PROJ. ENG.			
	PROJ. MGR.			
	APPROVED:			
ED FOR CONSTRUCTION	APPROVED:			

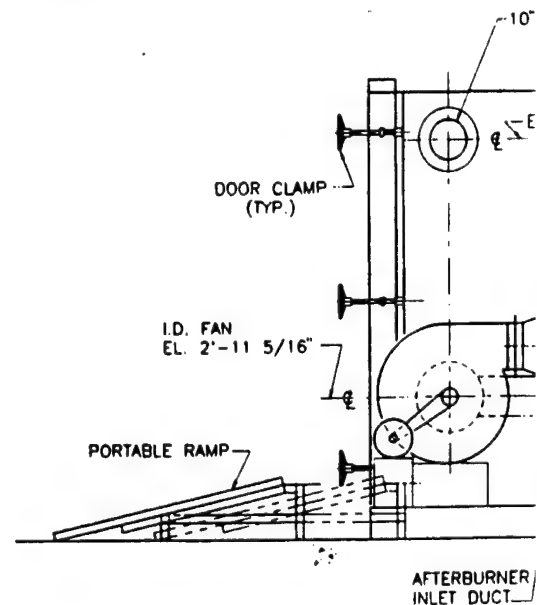
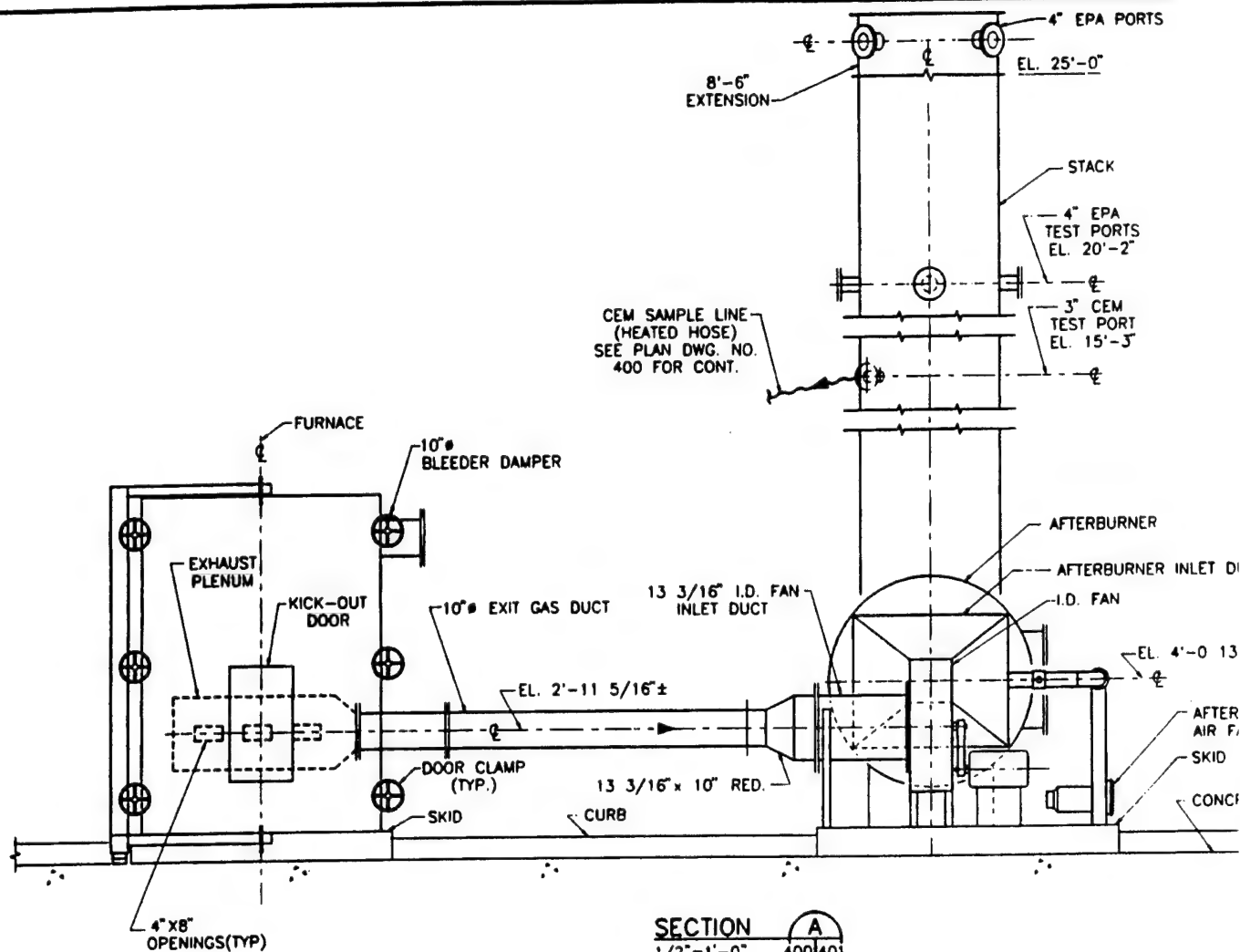


CHECKED	DATE	CLIENT APPROVALS	DATE
<i>Ch. Pade</i>	8/3/96		
DES. ENG.			
PROD. ENG.			
PROD. MGR.			
APPROVED			
APPROVED			

HOT GAS DECON SYSTEM GENERAL ARRANGEMENT PLAN

DESIGN	J M	DATE	11/09/94	DOC NO.	400	REV	1
SCALE	3/16" = 1'	W.D. NO.	2281-012-010	SHT		OF	

3

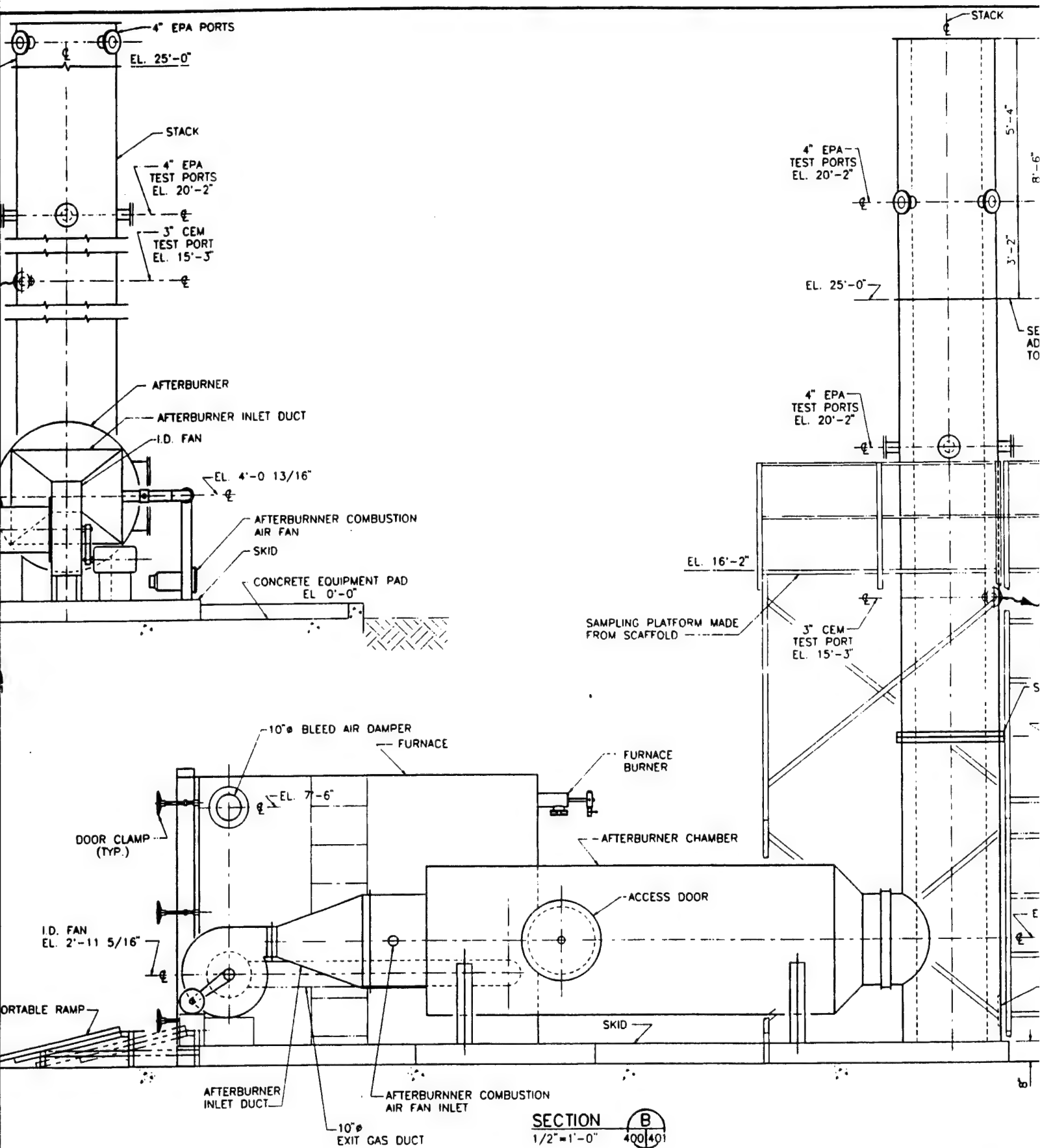


NOTE:
TOP OF CONCRETE EQUIPMENT PAD
IS ASSUMED TO BE EL. 0'-0".

PLOTTED 07/31/98 11:36 am
P.L.T. SC. 1-24 FILE NO. 12104001

NO	DATE	APPR.	REVISION	NO	DATE	APPR.	REVISION
-	QAM	CAP	ISSUED FOR CONSTRUCTION				
1	1/1/98	CAP	REVISED INTERCONNECTING DUCT ARRANGEMENT; ADDED 8'-6" STACK EXT.				

HO
DECONTAMII
ALAAP
WEST CHESTER
WCE



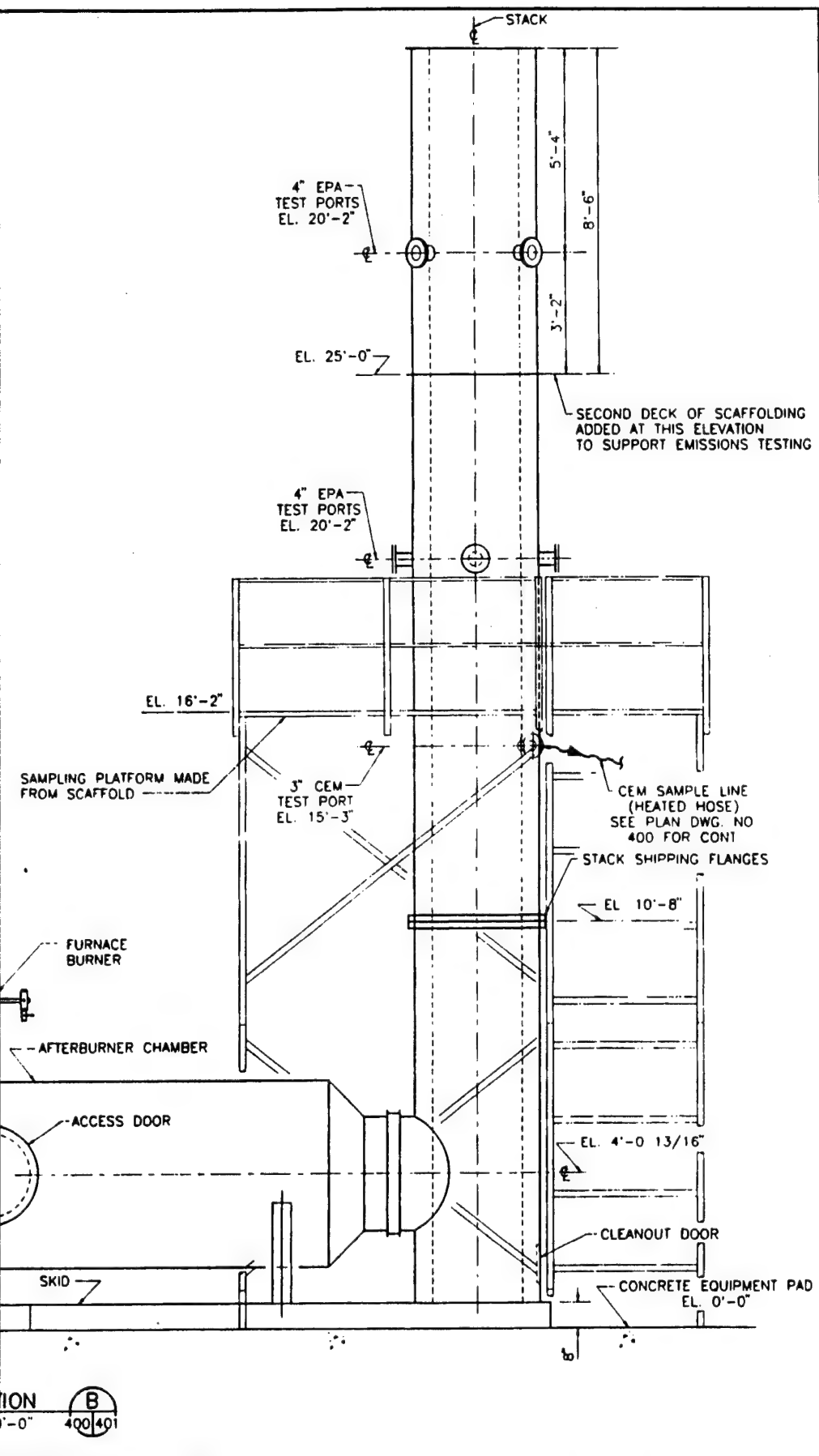
HOT-GAS
DECONTAMINATION SYSTEM
ALAAP

WESTON
ENGINEERING/CONSULTING

CHECKED	DATE	CLIENT APPROVALS	DATE
DES. ENG.			
PROJ. ENG.			
PROJ. MGR.			
APPROVED			
APPROVED			

HOT GAS D
SECTIONS

DATE	J.M.	DATE	11/10
SCALE	1/2" = 1'	NO. NO.	02281-01



SECTION (B)
1'-0"

DATE	CLIENT APPROVALS	DATE

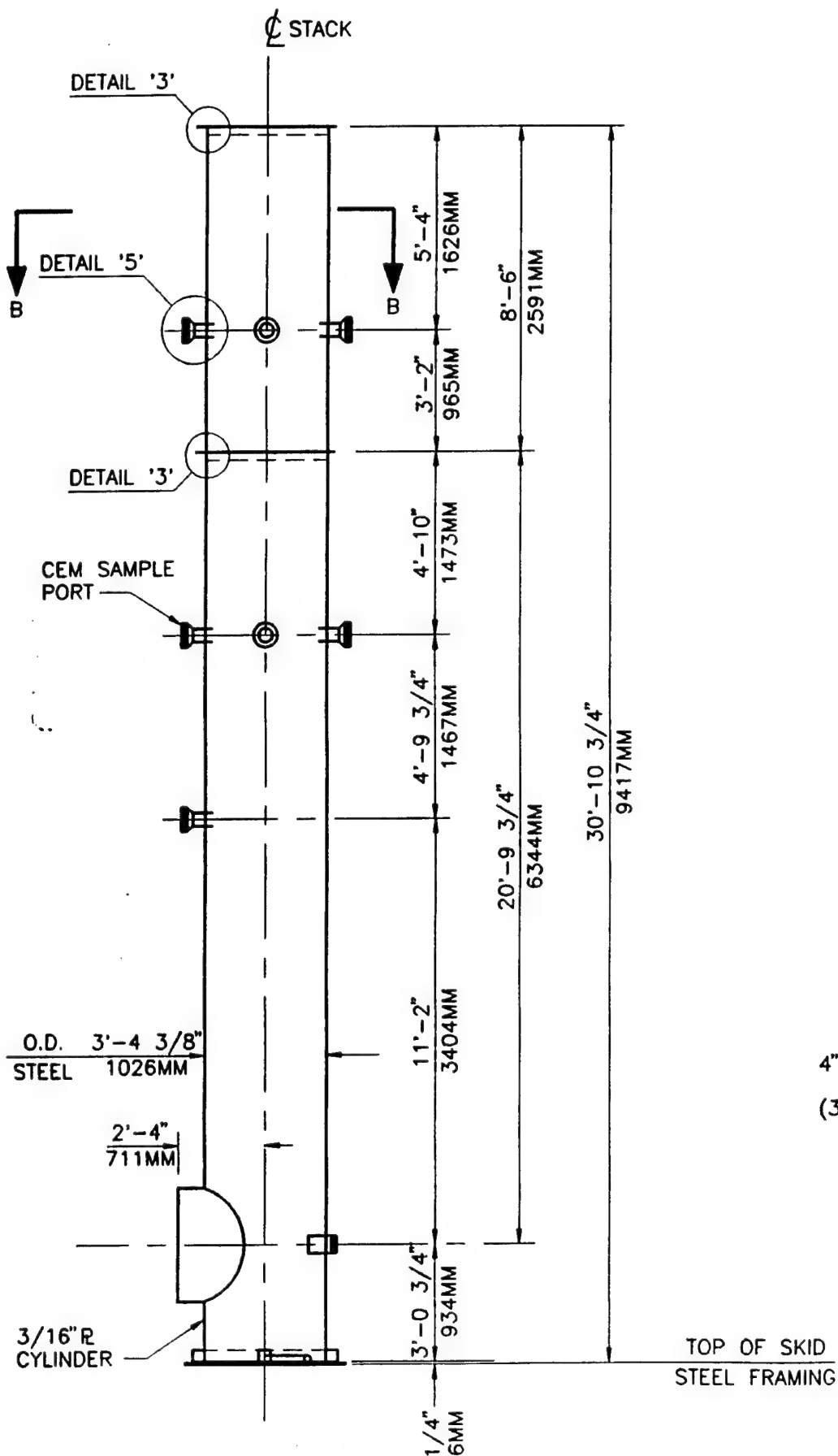
HOT GAS DECON SYSTEM SECTIONS AND DETAILS

DRAWN J.M.	DATE 11/10/94	DWG. NO. 401	REV. NO. 1
SCALE 1/2" = 1'	DWG. NO. 02281-012-010	BY _____ OF _____	

(3)

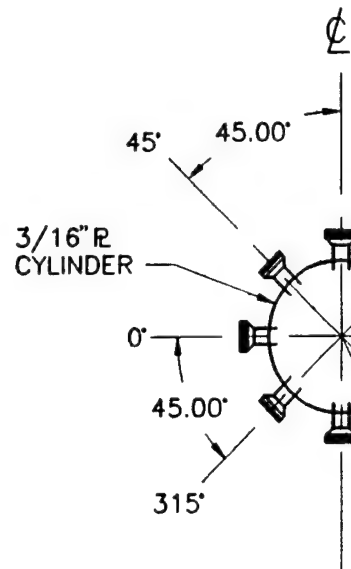
PLOTTED
PLT. SC.

1



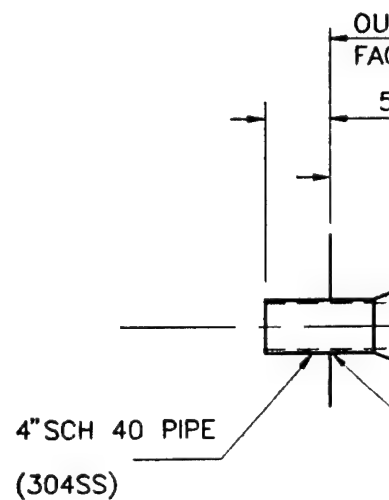
ELEVATION VIEW

SCALE: 1/4" = 1'-0"



SECTION SAMPLE PORTS

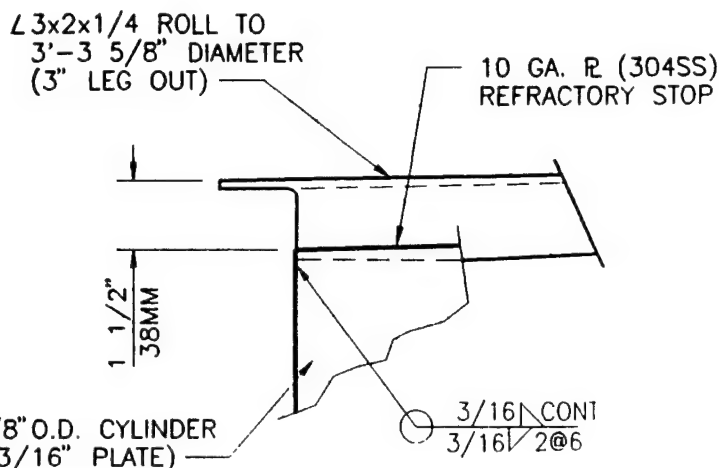
SCALE: 1/4"



(EPA

ST/
TO SUPP
PROPO
DEL

REFERENCE
W.O. NO.: 0228



DETAIL '3'
(STACK CAP RING)
N.T.S.

N.T.S.



1. SANDBLAST EXTERIOR SURFACES PER SSPC-SP6.
2. PAINT EXTERIOR SURFACES W/(1) COAT (3-4) MILS DFT CARBOZINC 11, FINISH COAT W/(2) COATS (4 MILS EACH) DFT "SHERMAN WILLIAMS-ALL-WEATHER-EXPOXY".
3. ALL C.S. MATERIAL SHALL BE A36.
4. ALL LIFTING LUGS LIFT STRAIGHT UP UNLESS NOTED OTHERWISE.

N.T.S.

1=48

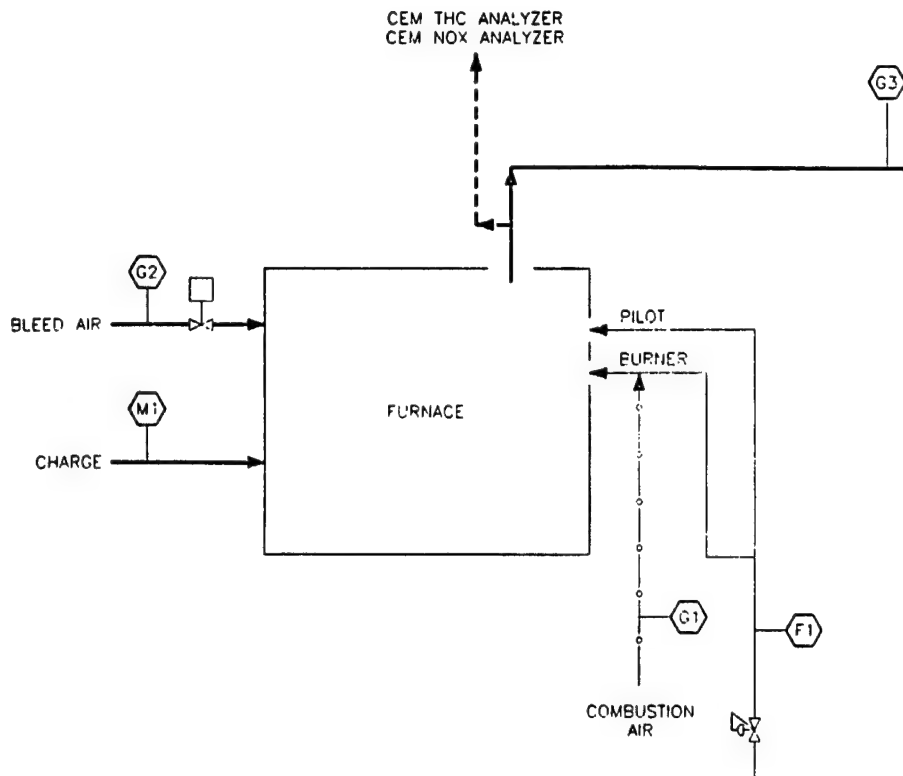
08/10/95 3:08 pm

ROY F. WESTON, INC.



DRAWN SCB	DATE 8/8/95	DES. ENG.	DATE	W. O. NO. 00936019095
CHECKED	DATE	APPROVED	DATE	DWG. NO. 1000

REFERENCE
NO.: 02281-012-012



WARM-UP CONDITIONS						
GAS FLOWS						
	Units	G1 Furnace Combustion Air	G2 Bleed Air Damper	G3 Furnace Exit Gas	G4 Afterburner Combustion Air	G5 Stack Exit Gas
Flow Rate	scfm	333	565	940	248	2,653
Temperature	°F	70	70	700	70	1,800
Pressure	in w.c.	27.00	-0.50	-0.50	13.90	-
Mass Flow : Warm Up	lb/hr	1,536	2,705	4,294	1,137	5,513
Composition:						
CO2	wt %	-	-	3.5	-	7.2
H2O	wt %	-	-	1.9	-	4.0
N2	wt %	79.0	79.0	77.7	79.0	78.8
O2	wt %	21.0	21.0	18.9	21.0	12.0
SOx	wt %	-	-	-	-	-
THC	wt %	-	-	-	-	-
NOx	wt %	-	-	-	-	-

FUEL		F1	F2
	Units	Furnace Fuel	Afterburner Fuel
Flow Rate (maximum)	scfh	423	1037
Pressure	psi	5	5
Mass Flow (maximum)	lb/hr	50.54	123.96
Burner Heat Release	btu/hr	1,128,866	1,630,850
Composition:			
C	wt %	81.6	81.6
H	wt %	18.4	18.4

MATERIAL			M1
	Units	Furnace Charge	
Charge Size (maximum)	lbs	3,000	
Moisture Content	%	-	
Temperature	°F	70	

STEADY-STATE CONDITIONS						
GAS FLOWS						
	Units	G1 Furnace Combustion Air	G2 Bleed Air Damper	G3 Furnace Exit Gas	G4 Afterburner Combustion Air	G5 Stack Exit Gas
Flow Rate	scfm	80	0	342	248.10	1,311
Temperature	°F	70	-	700	700	1,800
Pressure	in w.c.	27.00	-	-0.50	13.90	-
Mass Flow	lb/hr	371	-	1,562	1,137	2,729
Composition:						
CO2	wt %	-	-	4.5	-	5.5
H2O	wt %	-	-	2.5	-	3.2
N2	wt %	79.0	-	77.3	79.0	77.2
O2	wt %	21.0	-	15.7	21.0	13.8
SOx	wt %	-	-	-	-	-
THC	wt %	-	-	-	-	-
NOx	wt %	-	-	-	-	-

FUEL		F1	F2
	Units	Furnace Fuel	Afterburner Fuel
Flow Rate (maximum)	scfh	197	248
Pressure	psi	5	5
Mass Flow (maximum)	lb/hr	24	29.63
Burner Heat Release	btu/hr	487,154	587,498
Composition:			
C	wt %	81.6	81.6
H	wt %	18.4	18.4

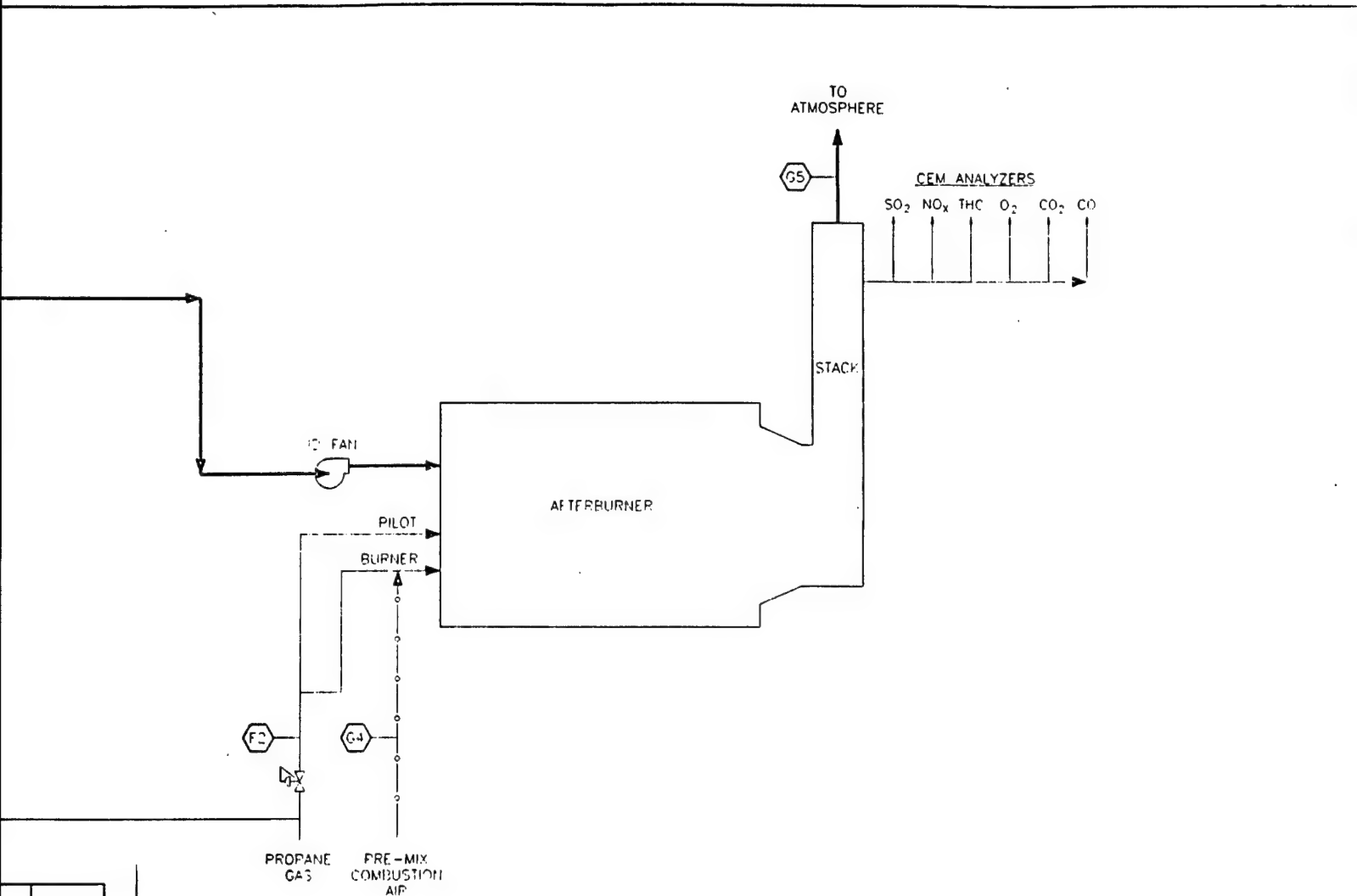
MATERIAL			M1
	Units	Furnace Charge	
Charge Size (maximum)	lbs	3,000	
Moisture Content	%	-	
Temperature	°F	700	

PRINTED 05/19/95 5:05 am
FILE NO. 12101001

1. ADDITIONAL INFORMATION		2. ADDITIONAL INFORMATION	
1. ADDITIONAL INFORMATION		2. ADDITIONAL INFORMATION	
1. ADDITIONAL INFORMATION		2. ADDITIONAL INFORMATION	
1. ADDITIONAL INFORMATION		2. ADDITIONAL INFORMATION	

U.S.
DELIVERY OR





	M1
Units	Furnace Charge
lb	3,000
h	70

COOL-DOWN CONDITIONS		Q1	Q2	Q3	Q4	Q5
GAS FLOWS		Furnace Combustion Air	Bleed Air Damper	Furnace Exit Gas	Afterburner Combustion Air	Stack Exit Gas
Flow Rate	scfm	333	565	918	248	1,108
Temperature	°F	70	70	—	70	1,800
Pressure	in w.c.	27.00	-0.50	-0.50	13.90	—
Mass Flow	lb/hr	1,538	2,705	4,243	1,137	2,324
Composition:						
CO2	wt %	—	—	—	—	14.7
H2O	wt %	—	—	—	—	8.1
N2	wt %	79.0	79.0	79.0	79.0	56.4
O2	wt %	21.0	21.0	21.0	21.0	17.8
SOx	wt %	—	—	—	—	—
THC	wt %	—	—	—	—	—
NOx	wt %	—	—	—	—	—

FUEL		F1	F2
		Furnace Fuel	Afterburner Fuel
Flow Rate (maximum)	scfm	—	856
Pressure	psi	—	5
Mass Flow (maximum)	lb/hr	—	114
Burner Heat Release	btu/hr	—	2,258,900
Composition:			
C	wt %	—	81.6
H	wt %	—	18.4

MATERIAL		M1
		Furnace Charge
Charge Size (maximum)	lbs	3,000
Moisture Content	%	—
Temperature	°F	700

M1
Furnace Charge
3,000
700

U.S.A.E.C.
LIVERY ORDER #10 & 12

WESTON
ANALYTICAL & CHEMICAL SERVICES

DATE	TIME	DATE	TIME

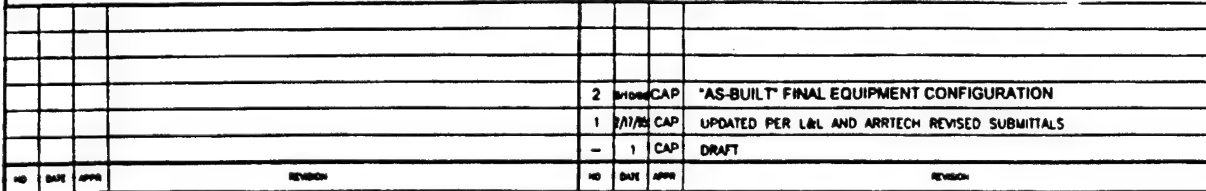
②

PROCESS FLOW DIAGRAM
HOT-GAS DECONTAMINATION SYSTEM

M. PALMISTO
NCE

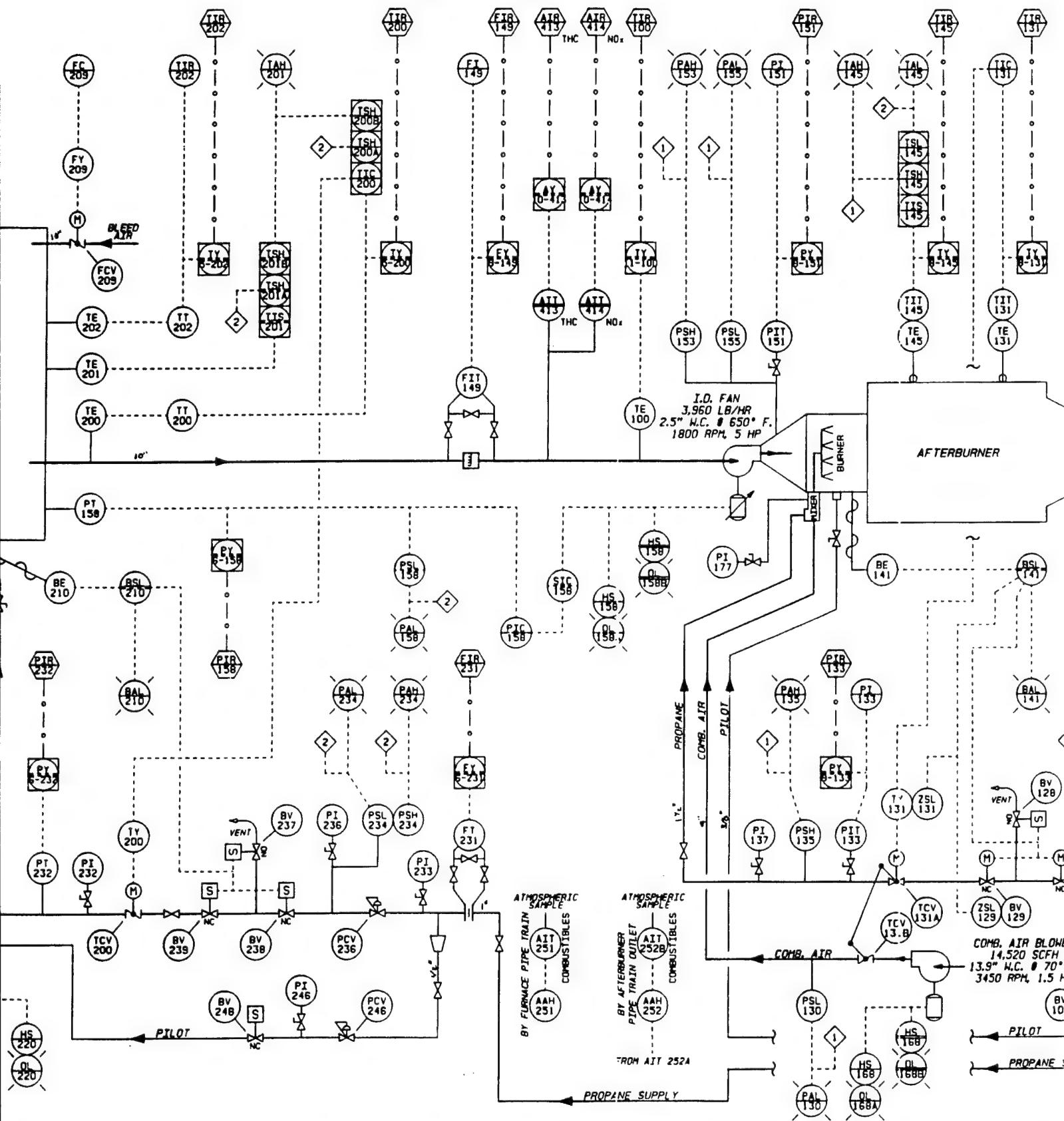
2004-01-12

1001 12



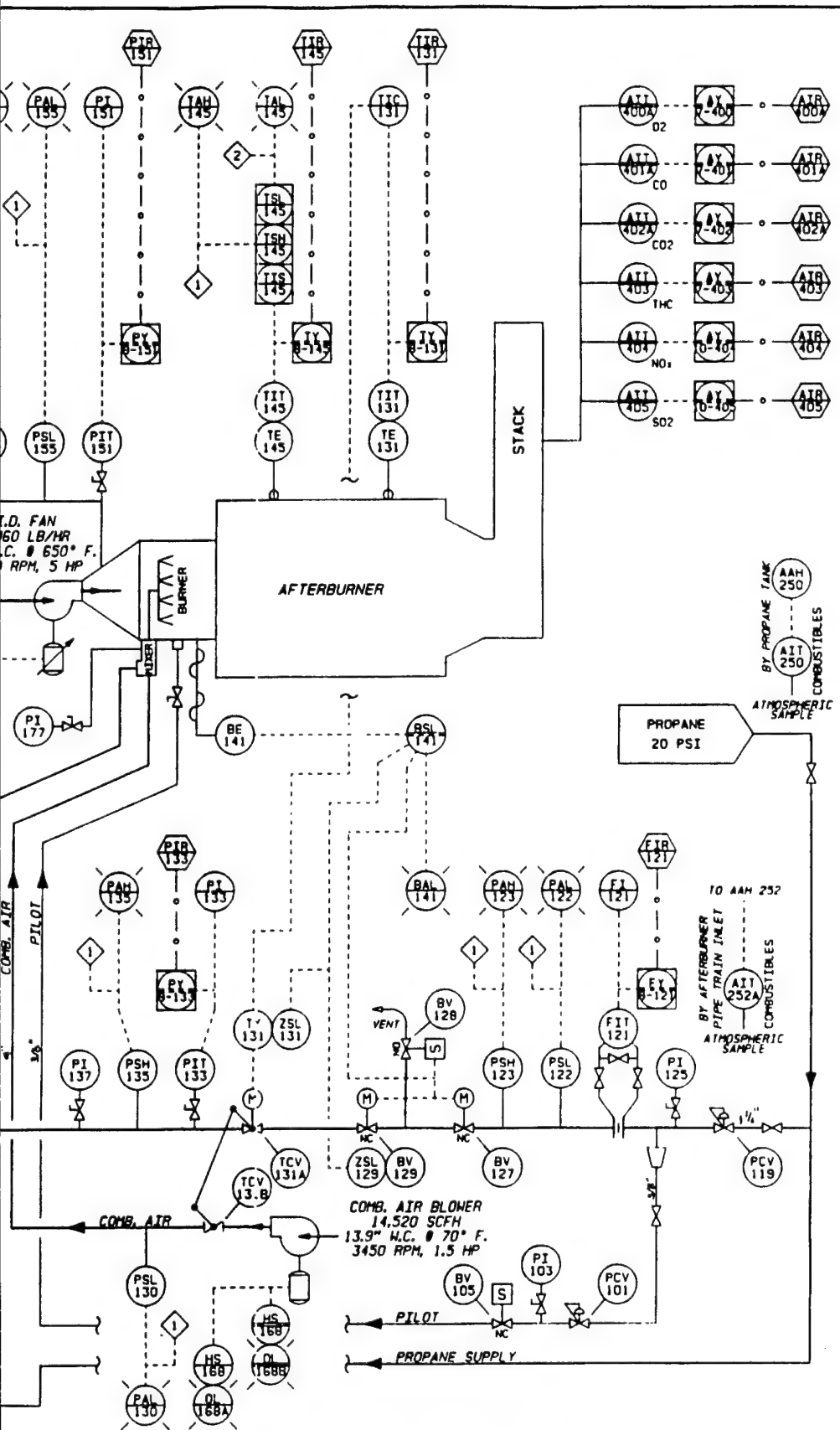
WEST

WEST CHESTER 1



DELIVERY ORDERS #10 & #12		CHECKED <i>Chad</i>	DATE 4/11/96	CLIENT APPROVALS	DATE	PIPIN
HOT-GAS DECON SYSTEM		DES. ENG.				
<div> <div>WESTON</div> <div>ENGINEERING</div> <div>RESEARCH/TECHNOLOGY</div> </div>		PROJ. ENG.				DRN
		PROJ. MGR.				R DA
		APPROVED				SCALE
		APPROVED				NOT

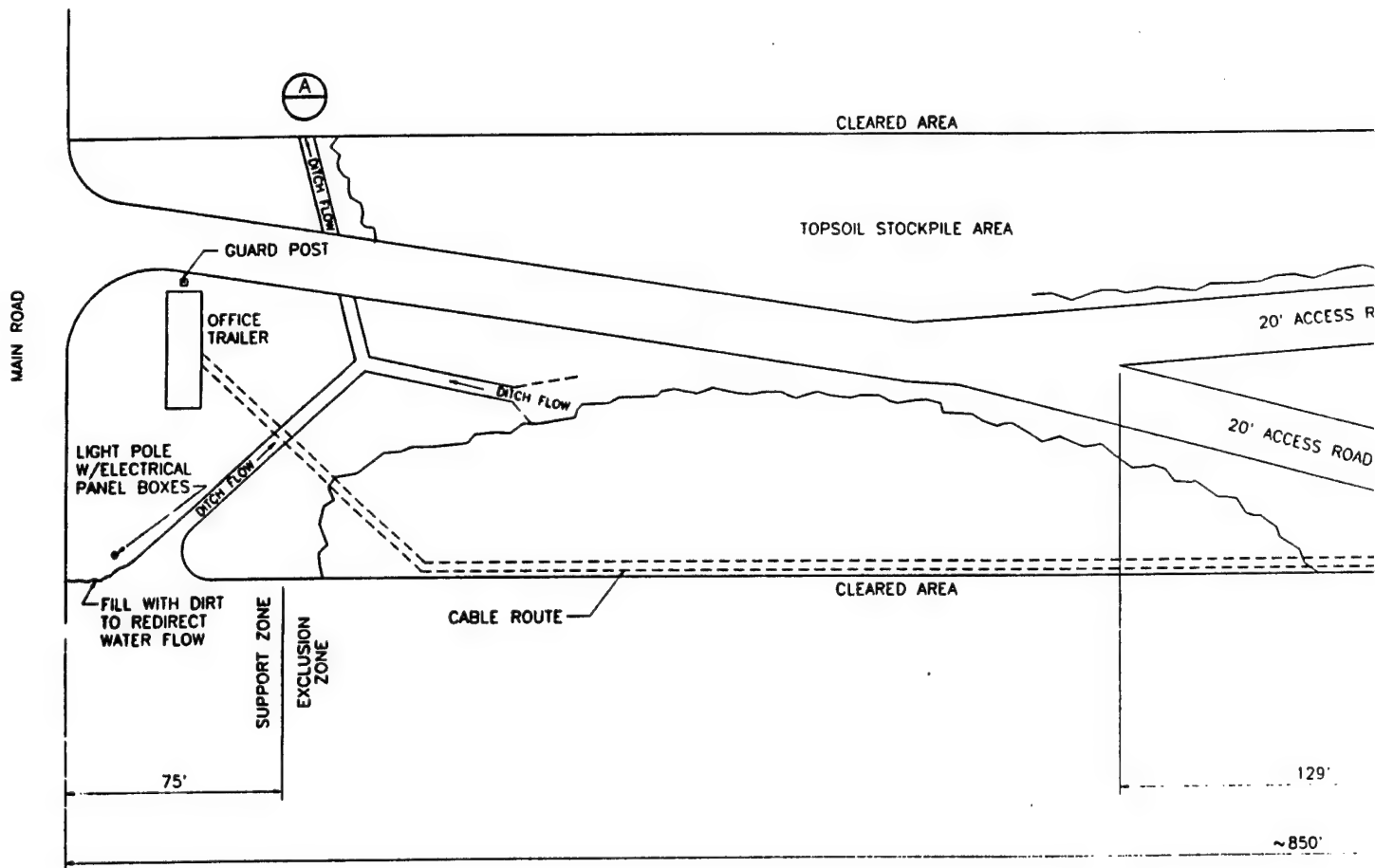
2



DATE	CLIENT APPROVALS	DATE	PIPING & INSTRUMENTATION DIAGRAM	
12/1/95			Drawn	R DAILY
			DATE	2/2/95
			Draw No.	1002
			Rev.	2
			Scale	NONE
			W.D. NO.	02281-012-010

3

—N—



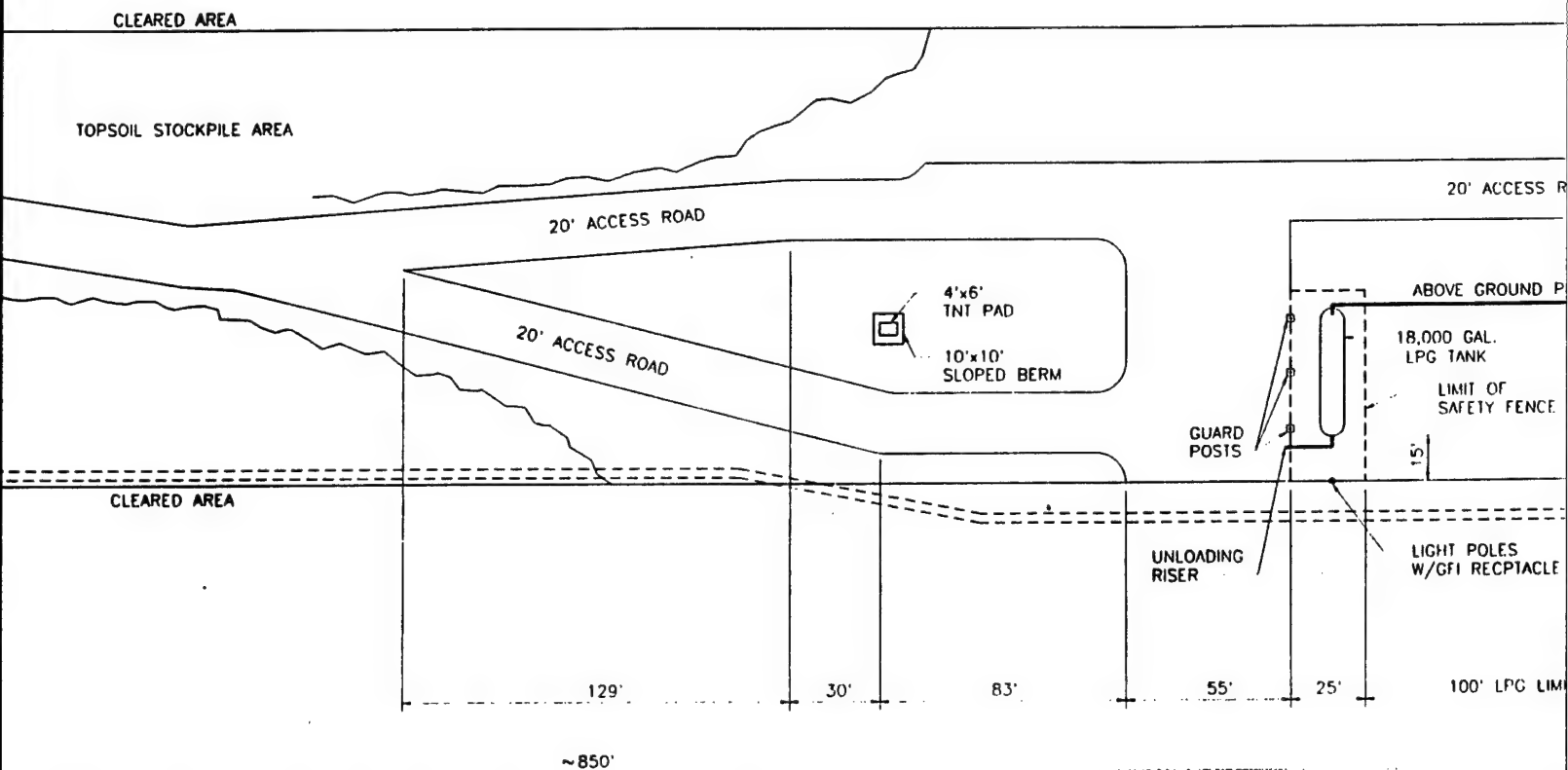
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 PLOT SC 1=360 FILE NO 12122000

NO	DATE	APPR	REVISION	NO	DATE	APPR	REVISION
3	1/10/96	WCH	SHOWN WITH MODIFICATIONS FOR TESTING				
2	1/1/96		SHOWN WITH TRAILERS AND AS CONSTRUCTED				
1			INITIAL SITE LAYOUT				

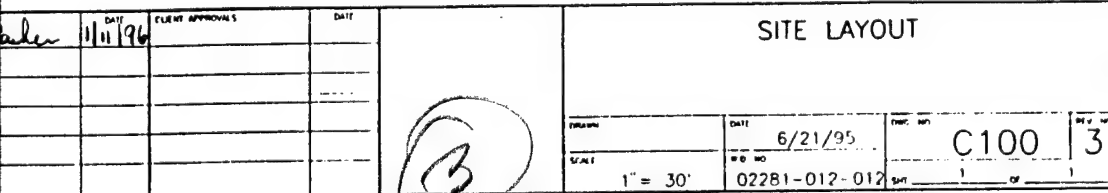
US
 DELIVERY ORD

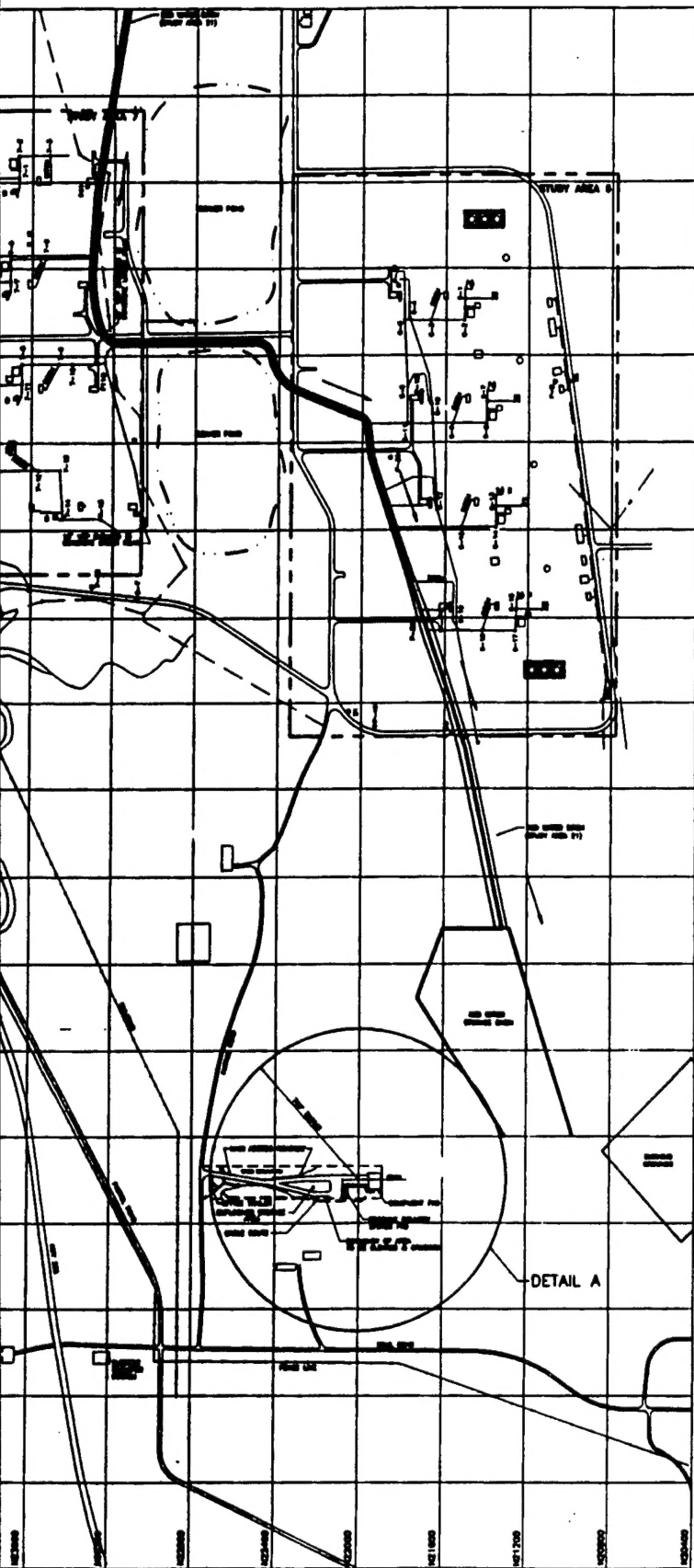
WCH
 MANAGER

WEST CHESTER

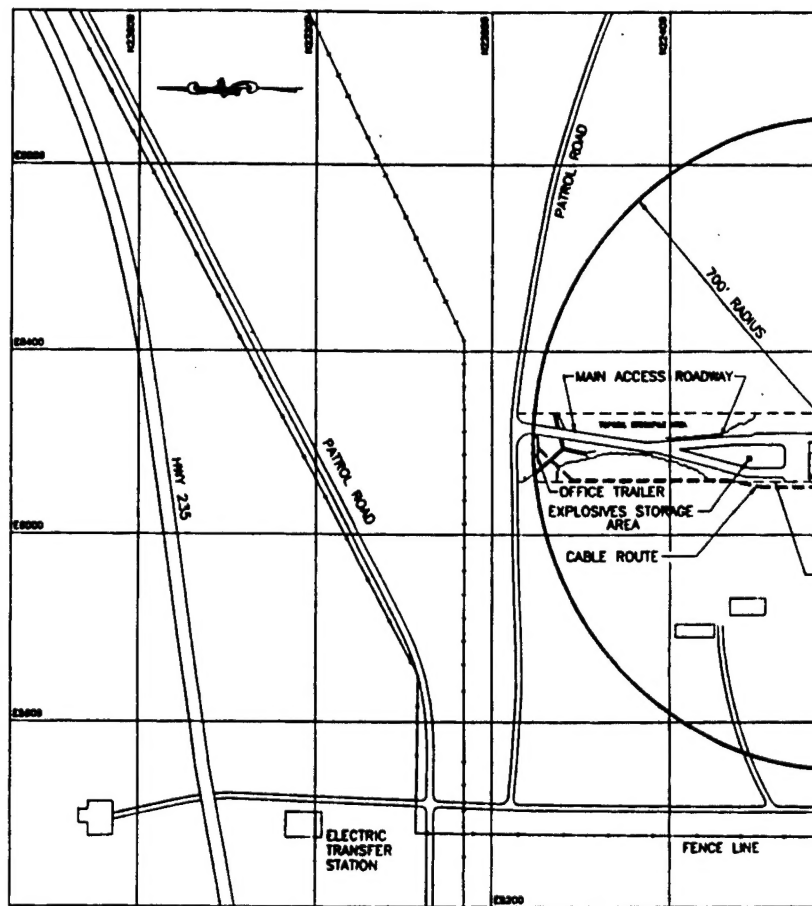


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			PROJ. ENG.			
			PROJ. MGR.			
			APPROVED			
			APPROVED			
WESTON <small>MANAGING PS. OF SCIENCE, ENGINEERING, ARCHITECTURE</small>		<small>WEST CHESTER</small>		<small>PE HAVESLYN, PA</small>		





NOTE:
DRAWINGS ARE APPROXIMATELY SCALED BASED UPON
PREVIOUS INVESTIGATIVE REPORTS PREPARED BY
AND A SITE PLAN PREPARED FOR ALABAMA ORDINANCE
WORKS (SANITARY & INDUSTRIAL WASTE SEWERAGE
NO. 2, 1946). SITE FEATURES AND OTHER INFORMATION
PROVIDED IN THIS DRAWING WILL BE VERIFIED DURING
SITE SURVEY AND SUBSEQUENT REMEDIAL ACTIVITIES.



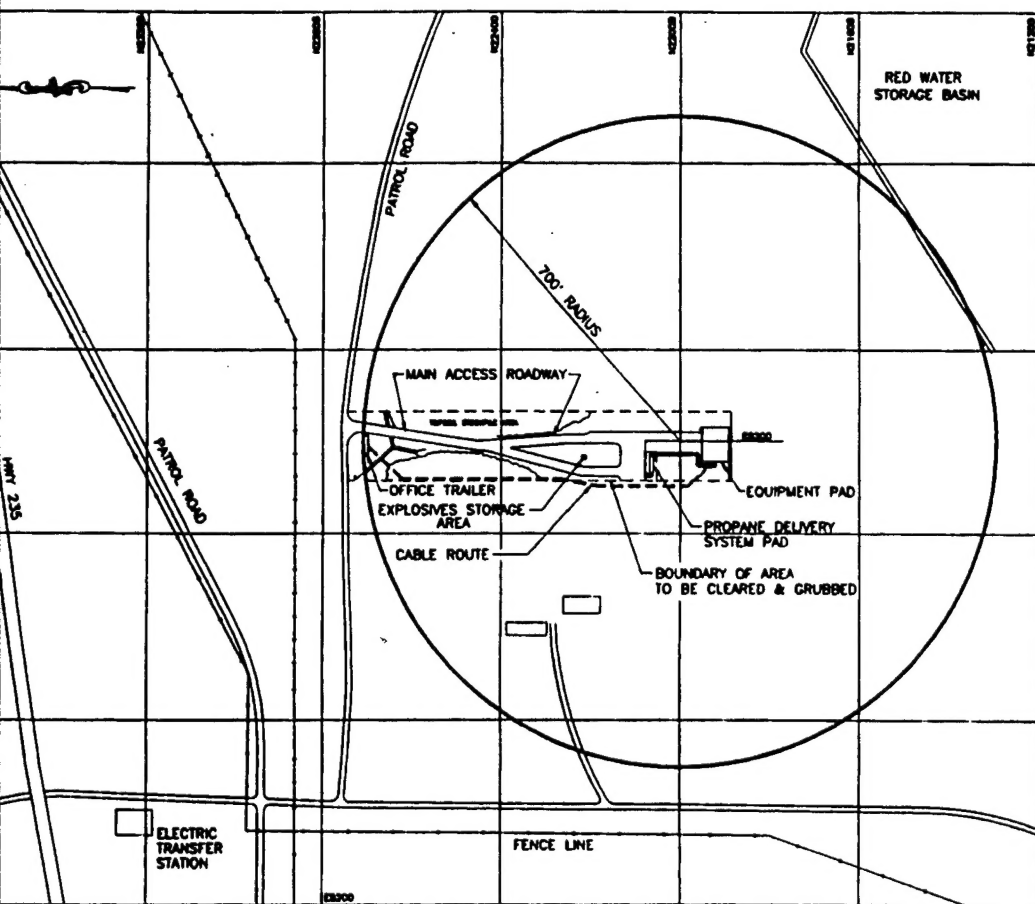
DETAIL A

- LEGEND**
- RAILROAD TRACKS
 - P41 MONITORING WELL
 - 7-3 MANHOLE
 - EXISTING ROAD
 - FLOW DIRECTION
 - 700' SAFETY ZONE

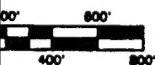


HOT-GAS DECONTAMINATION SYSTEM ALPINE ALABAMA		CHECKED DATE CLIENT APPROVALS DATE		HO O	
\$ FOR TESTING AGE AREA & ADDITIONAL SITE ID'S TE OTHER SITE REMEDIATION ACTIVITIES		WESTON ENGINEERING, CONSULTING, & REMEDIATION, INC. P.O. BOX 1000 ALPINE, ALABAMA 35554		SCALE 1" = 400'	
WESTON ENGINEERING, CONSULTING, & REMEDIATION, INC.		APPROVED APPROVED		APPROVED APPROVED	

DRAWINGS ARE APPROXIMATELY SCALED BASED UPON PREVIOUS INVESTIGATIVE REPORTS PREPARED BY ESE INC., AND A SITE PLAN PREPARED FOR ALABAMA ORDNANCE WORKS (SANITARY & INDUSTRIAL WASTE SEWERAGE PLANT NO. 2, 1946). SITE FEATURES AND OTHER INFORMATION PROVIDED IN THIS DRAWING WILL BE VERIFIED DURING THE SITE SURVEY AND SUBSEQUENT REMEDIAL ACTIVITIES.

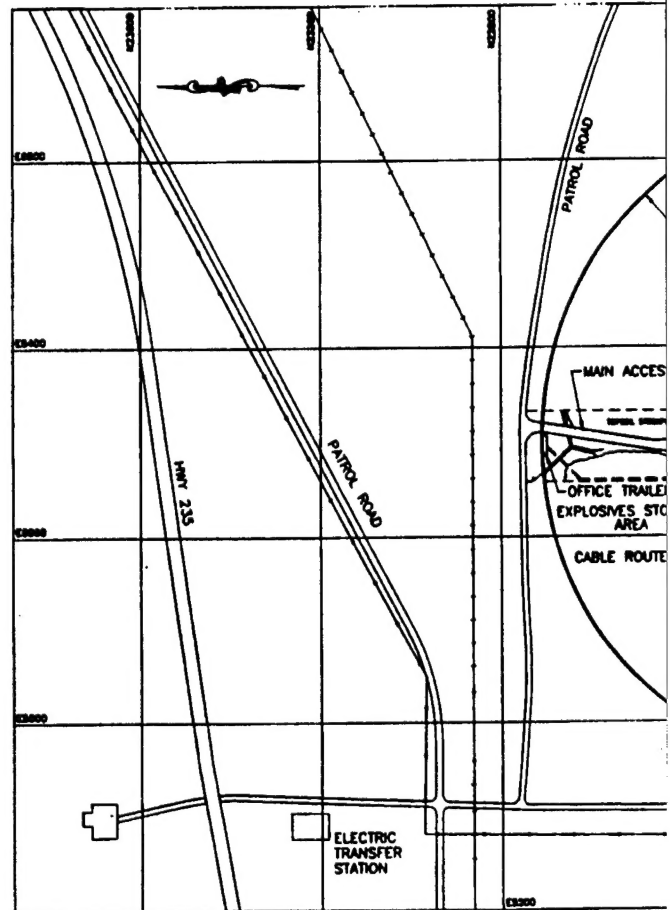


RAILROAD TRACKS
MONITORING WELL
MANHOLE
EXISTING ROAD
FLOW DIRECTION
700' SAFETY ZONE



DATE	CUSTOMER APPROVALS	DATE	<p align="center">HOT GAS DECON SYSTEM OVERALL SITE LAYOUT</p>			
			DRAWN R.L.	DATE 11/9/94	SHEET NO. 2000	REV. NO. 3
			SCALE 1" = 400'	P & NO. 02281-012-010	DATE _____ OF _____	

3



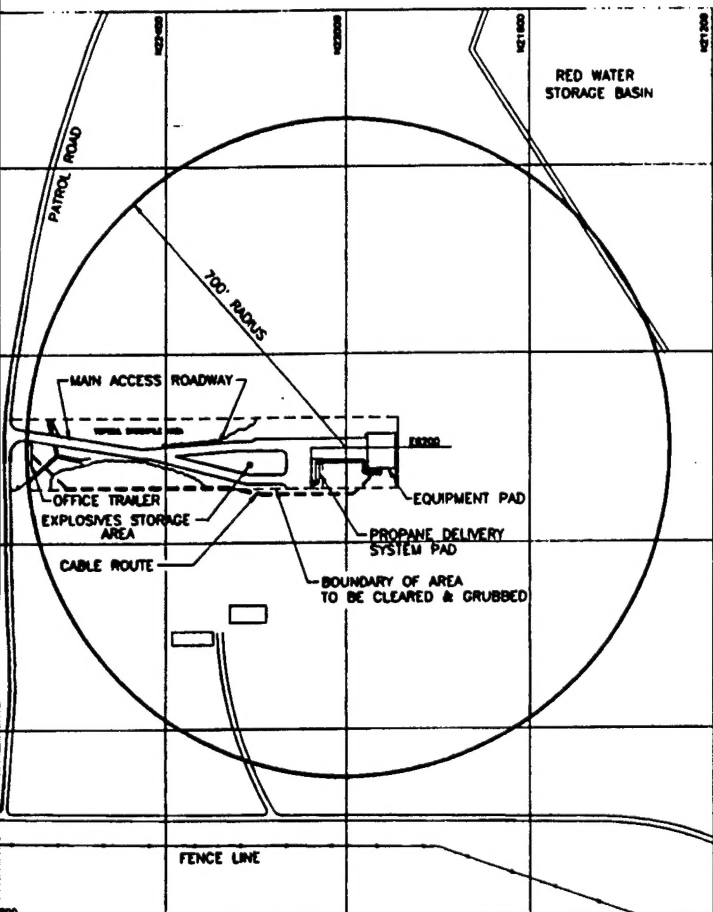
①

PLOTTED 08/07/98 10:22 am
 PLOT SC 1-2400 FILE NO. 12102001

NO	DATE	APPL	REVISION
2	8/7/98	CAP	SHOWN WITH MODIFICATIONS FOR TESTING
1	1/1/98	CAP	ADDED EXPLOSIVES- STORAGE AREA & ADDITIONAL SITE ID'S
-	1/1/98	CAP	ISSUED FOR CONSTRUCTION

HOT -
 DECONTAMINATION
 ALPINE

 WEST CHESTER



2



HOT - GAS
CONTAMINATION SYSTEM
ALABAMA

WESTON
ENGINEERS, ARCHITECTS, PLANNERS

PROJECT NO. 02281-012-010

CHECKED	DATE	CLIENT APPROVALS	DATE
DES. ENG.			
PROJ. ENG.			
PROJ. MGR.			
APPROVED			
APPROVED			

FIGURE 1
SYSTEM SITE LAYOUT

DESIGN	B. DAILY	DATE	11/11/94	DWG. NO.	2001	REV. NO.	2
SCALE	1" = 200'	W.D. NO.	02281-012-010	DAT.			